# Annual Planning Information Report

## Program year 1989

State of Michigan

# ANNUAL PLANNING INFORMATION

PROGRAM YEAR 1989
(July 1989 through June 1990)

**MICHIGAN**

Prepared by

**MICHIGAN EMPLOYMENT SECURITY COMMISSION**
Bureau of Research and Statistics
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## PREFACE

This Annual Planning Information Report, published by the Michigan Employment Security Commission, Bureau of Research and Statistics, is an attempt to fulfill many of the data needs required by local planners. This report contains standardized information which is comparable with that prepared for the other service delivery areas in Michigan. Data prepared by MESC is published along with information from other agencies in an attempt to provide area planners with an awareness of the broad range of information which is currently available for local planning purposes. The report's appendices contain specially prepared information tables intended to be used in conjunction with other data and narrative portions of this report.

This information was developed to meet the Michigan Department of Labor, Bureau of Employment and Economic Development's current planning guidelines and is the most comprehensive program year data currently available. The MESC Labor Market Analysis staff utilized various data resources to estimate or project area planning information. In order to facilitate the use of this package, sections on table descriptions and glossary of terms are included. Data limitations, interpretation, and application are discussed in the table description section. User questions and suggestions are welcome.

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## HIGHLIGHTS

Michigan's recent population developments point to a steady increase in its labor supply. The state's population has been increasing since 1984. In 1987, the state recorded an increase of 60,000, for a total population of 9,200,000.

During the 1980-87 period, the state's labor force grew by 5.2 percent.

The state's labor market conditions began to improve after 1982, and by 1987 employment increased by 397,000. Strong employment growth resulted in a significant unemployment rate decline from a high of 15.5 percent in 1982 to 8.2 percent in 1987.

The state jobless rate is expected to bottom out at 7.5 percent in PY 1988, but expected cutbacks in manufacturing employment and continued labor force gains should result in an unemployment rate rise to eight percent in PY 1989.

Private wage and salary employment in the state increased by approximately 319,925 jobs or 11.5 percent over the 1980-87 period.

Those industries which are currently the best targets for employment and training are services (business, other professional and personal), other retail trade (eating and drinking places), plastic products, department stores and finance, real estate and insurance.

Wage and salary employment between PY 1987 and PY 1989 is expected to increase by nearly 3.3 percent or 123,000 jobs.

Occupational groups expected to have above average employment growth between 1985-95 include executive, administrative and managerial workers; professional workers; technicians and related workers; and sales and service workers.

Approximately 60 percent of the top 20 occupations expected to experience the most employment decline are industrial, blue collar jobs.

## I. AREA PROFILE

Michigan is divided into two peninsulas by the Straits of Mackinac and is bordered by four of the Great Lakes, the states of Indiana, Ohio and Wisconsin and the Canadian Province of Ontario. In terms of land area, Michigan is the 23rd largest state but its coastline is second only to Alaska. Michigan's aquatic scenery consists of a 3,000 mile shoreline that extends along the Great Lakes, and inland lakes that exceed 11,000 in number. In addition to 6.4 million acres of public forests, the state's 14,000 campsites and 83 parks and recreational areas have made Michigan a popular vacation-land in which billions of tourist dollars are spent annually.

The two peninsulas of Michigan are connected by the five mile long Mackinac Bridge, the third longest suspension span in the United States. The Upper Peninsula is rich in iron ore, copper and other minerals. The Lower Peninsula also has vast natural resources (oil, natural gas and salt), however, primary economic activity is centered around automobile manufacturing. Although efforts have been made towards industrial diversification, the transportation equipment industry and its vast network of supplier plants continue to form the mainstay of the state's economy.

In terms of income and earnings, the per capita personal income of Michigan residents rank in the top half of the nation. In 1986, state residents had a per capita personal income of $14,806. This was the 17th highest level recorded in the nation, representing an increase of 5.5 percent over 1985. The national average for 1986 reached $14,639, and that was an increase of 5.2 percent over 1985. Persons employed in Michigan primarily earned their income in three major industry sectors. The largest industries in 1986 were durable goods manufacturing, which accounted for 31.5 percent of earnings; services, 19.4 percent; and state and local government, 11.2 percent.

Michigan consists of 83 counties, which are grouped into 68 labor market areas (LMA's), of which 11 are defined as Metropolitan Statistical Areas (MSA's). Lansing, the state's legislative capital and fifth largest city, is centrally located in the southern portion of the Lower Peninsula. Detroit, the state's commercial capital and largest city with a 1986 population of approximately 1.1 million, is situated in the southeastern corner of the Lower Peninsula. With the central administrative offices of the three largest automakers and numerous factories and auto-related facilities, the Detroit metropolitan area is the focal point of manufacturing and trade activity in the state.

## POPULATION

Population developments in a local area have important implications for current and future employment and training policy. The size and age distribution of an area's population is a major influence on its labor supply. Michigan's recent population developments point to a steady increase in the labor supply. In 1987, the State recorded an increase of 61,000 residents, bringing the population to a total of 9,200,000. This was the fourth consecutive year of population growth in the State, indicating a steady recovery from the 1980 and the 1982 recessions. In 1980 Michigan's population stood at 9,262,078, and in 1984, following a serious downturn in the economy, the count dropped to 9,059,563, a fall of 2.2 percent.

However, in 1985, with the recovery of the automotive industry, the outmigration from the State began to decline, and the population, as well as the labor force, started to rise. It is estimated that in 1987, the migration into Michigan has exceeded the outmigration, and in 1988, the State's population is expected to surpass the totals recorded in 1980.

**TABLE I.A**

**TOTAL POPULATION**

**MICHIGAN - UNITED STATES**

| YEAR | POPULATION | | PERCENT CHANGE | |
|---|---|---|---|---|
| | MICHIGAN | UNITED STATES | MICHIGAN | UNITED STATES |
| 1940 | 5,256,106 | 132,164,569 | - | - |
| 1950 | 6,371,766 | 151,325,798 | 21.2 | 14.5 |
| 1960 | 7,823,194 | 179,323,175 | 22.8 | 18.5 |
| 1970 | 8,881,826 | 203,211,926 | 13.5 | 13.3 |
| 1980 | 9,262,078 | 226,545,805 | 4.3 | 11.5 |
| 1987 | 9,200,000 | 243,400,000 | -0.7 | 7.4 |

Source: U. S. Bureau of the Census
Michigan Department of Management and Budget

## DEMOGRAPHICS

Information on the racial and ethnic composition of an area's population and family structure is important to understanding racial and ethnic differences in median family income, poverty and eligibility for income-conditioned programs such as JTPA Title II. Data for 1980 on the racial and ethnic characteristics of the population and of households are presented in the following tables. No comparisons are made between the 1970 and 1980 Census detail for racial categories due to differences in Census enumeration procedures.

**TABLE I.B**

**DEMOGRAPHIC POPULATION CHARACTERISTICS**

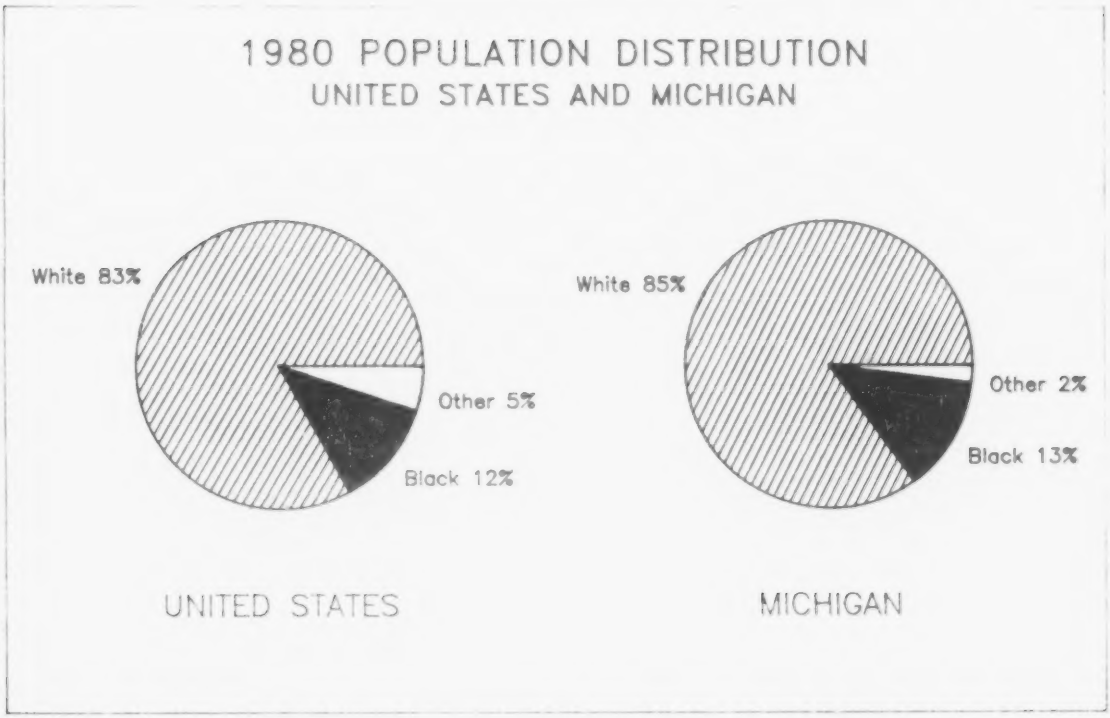
**MICHIGAN**

**1980**

| | 1980 | PERCENT OF TOTAL POPULATION |
|---|---|---|
| TOTAL POPULATION | 9,262,078 | 100.0 |
| SEX | | |
| Male | 4,514,957 | 48.7 |
| Female | 4,747,121 | 51.3 |
| RACE/ETHNIC(1) | | |
| White | 7,893,278 | 85.2 |
| Black | 1,197,177 | 12.9 |
| Native American | 44,919 | 0.5 |
| Asian/Pacific Islander | 62,641 | 0.7 |
| Other | 64,063 | 0.7 |
| Hispanic | 157,626 | 1.7 |

Source: 1980 Census

FIGURE 1




Michigan's racial makeup includes a higher proportion of whites and blacks than nationwide while other minority races are less represented. Michigan's 1980 racial distribution was 85.2 percent white, 12.9 percent black and 1.9 percent other races, compared to the national distribution of 83 percent white, 12 percent black and 5 percent other races. The state's hispanic population, at almost 2 percent of total, is significantly less well represented than it is nationally, at 6.4 percent.

The changing age structure of the state's population is another demographic development with important implications for future labor force trends and replacement demands for workers.

Between 1970 and 1980, the state's overall population on average grew older. During this period, as the birth rate declined, the 1940-50 "baby boom" population reached prime working age. The 22-54 age group's proportion increased from 39 to 43 percent of total population, the 55+ age group increased from 17 to 19 percent and the 16-21 age group increased from approximately 11 to 12 percent. These developments indicate the state is likely to experience a relatively greater amount of job replacement demand due to retirements during the 1980's than any time in the recent past. In addition, relatively greater labor force growth should occur in the 22-54 age group.

TABLE I.C

POPULATION AGE STRUCTURE

MICHIGAN

1970 - 1980

| AGE GROUP | 1970 PERCENT | 1980 PERCENT |
|---|---|---|
| Under 10 | 19.5 | 15.2 |
| 10-13 | 8.8 | 6.9 |
| 14-15 | 4.4 | 3.7 |
| 16-17 | 4.1 | 3.9 |
| 18-19 | 3.7 | 3.9 |
| 20-21 | 3.2 | 3.9 |
| 16-21 | 10.9 | 11.7 |
| 22-24 | 4.6 | 5.7 |
| 25-34 | 12.1 | 16.4 |
| 35-44 | 11.3 | 11.1 |
| 45-54 | 11.3 | 10.1 |
| 55-64 | 8.5 | 9.3 |
| 65+ | 8.5 | 9.8 |

Source: 1980 Census

If labor force participation rates remain unchanged, then a declining population in the under 17 age group will mean that relatively fewer labor force entrants will need to be absorbed by the Michigan job market in the late 1980's.

During March 1980, there were 2,404,910 Michigan households. Of this total 410,746 households, or 17.1 percent, were headed by females. The share of Michigan households headed by women varies sharply by racial and ethnic group. Of all white, non-hispanic households in this state, only 13.3 percent are headed by women. Among black, native american and hispanic households, the ratio rises to 44.4 percent, 27.3 percent and 22.3 percent, respectively.

Other data detailing family poverty by race and ethnic characteristics indicate a relatively greater incidence of poverty among black, native american and hispanic families. In addition, more than half of the families with income below the poverty level are headed by females.

TABLE I.D

MICHIGAN HOUSEHOLDS

1980

| | TOTAL HOUSEHOLDS | FEMALE HOUSEHOLDS | PERCENT FEMALE |
|---|---|---|---|
| Total | 2,404,910 | 410,746 | 17.1 |
| White (Non-Hispanic) | 2,069,993 | 275,766 | 13.3 |
| Black (Non-Hispanic) | 277,809 | 123,297 | 44.4 |
| Native American (Non-Hispanic) | 9,912 | 2,710 | 27.3 |
| Asian and Pacific Islander (Non-Hispanic) | 12,559 | 1,368 | 10.9 |
| Other (Non-Hispanic) | 927 | 96 | 10.4 |
| Hispanic | 33,710 | 7,509 | 22.3 |

Source: 1980 Census

TABLE I.E

MICHIGAN FAMILIES

BELOW POVERTY

1980

| | TOTAL FAMILIES BELOW POVERTY | PERCENT OF ALL FAMILIES | PERCENT FEMALE WITH NO HUSBAND PRESENT |
|---|---|---|---|
| Total | 198,391 | 8.2 | 54.5 |
| White (Non-Hispanic) | 124,306 | 6.0 | 43.5 |
| Black (Non-Hispanic) | 65,015 | 23.4 | 76.2 |
| Native American (Non-Hispanic) | 1,927 | 19.4 | 56.7 |
| Asian and Pacific Islander (Non-Hispanic) | 1,313 | 10.5 | 21.9 |
| Other (Non-Hispanic) | 116 | 12.5 | 29.3 |
| Hispanic | 5,714 | 17.0 | 54.0 |

Source: 1980 Census

## II. LABOR MARKET DEVELOPMENTS

### LABOR FORCE TRENDS

The state's labor force continues a slowdown in growth that began in the early 1980's. The largest labor force growth, 10.3 percent, occurred over the 1975-80 period. During the 1980-87 period the labor force grew by only 5.2 percent. This reduced growth can be attributed to the 1980-82 recession which severely affected labor market conditions in Michigan. The state's labor market conditions began to improve after 1982 and by 1987 employment had increased by 397,000. Strong employment growth resulted in a significant unemployment rate decline from a high of 15.5 percent in 1982 to 8.2 percent in 1987.

Changes in the labor force reflect changes in representation of diverse population groups. The demographic distribution of the labor force will generally become older with more women, black and hispanic participants. Overall men will experience a decline in their representation in the work force, while women are expected to post increases, but at a declining rate. Non-hispanic white males will post significant declines based on a drop in the number of young white males born during 1965-1978, and also as a result of continuing decreases in the labor force participation rates of older white males. In terms of age, the share of the workforce aged 16 to 34 and 55 years and over is projected to decline while 35 to 54 year olds are expected to increase. The following brief discussion of major groups reflect the variance of labor force trends by age, sex and race.

#### Women

The prime age female labor force has consistently been the fastest growing group. In Michigan, over the 1980-87 period, the adult female labor force participation rate increased by 5.6 points, as their labor force ranks swelled by approximately 264,000. By 1987, nearly 53 percent of the adult female population participated in the labor force. During the latter part of the 1980-87 period, labor market conditions for women improved as employment increased by 295,000, causing the unemployment rate to fall by 3.2 points to 7.2 percent in 1987.

#### Youth

In Michigan the teenage labor force began to decline in 1980. During the 1980-87 period the state's teenage labor force dropped by 16 percent, the largest decline of any labor force group. Historically, teenagers have faced considerable competition for jobs, however with their numbers falling, there should be relatively less competition. Another effect of a smaller teenage labor force is possible labor shortage for some employers of younger workers. However, some employers are responding to this shortage by hiring a different age mix of employees or by offering higher wages to continue attracting teenage employees. Labor market conditions overall have not improved for teenage workers. During the 1980-87 period, employment declined by

48,000 as double-digit unemployment rates continued. In 1987, youth unemployment averaged 18.7 percent.

Seniors 55+

The older labor force (55 years and over) began to contract in the 1980's and is expected to continue declining. During the 1980-87 period, the senior labor force declined by nearly 12 percent. As more people are covered by pension plans, labor force participation of older workers can be expected to drop. The seniors were one of two labor force groups (the other was teenagers) experiencing declines over the 1980-87 period. Labor market conditions for the senior labor force have remained fairly stable. This group generally experiences one of the lowest unemployment rates of any labor force group. During 1987 the senior labor force unemployment rate averaged 4.6 percent.

Nonwhite

The nonwhite labor force continued to grow faster than the white labor force over the 1980-87 period. The nonwhite labor force expanded by 13.3 percent compared to 6.5 percent for white. In 1987, the nonwhite labor force comprised 11.7 percent of the state's total labor force. During the 1980-87 period, labor market conditions for the nonwhite group were somewhat improved as their unemployment rate declined four points to 17.6 percent in 1987. However, this group continues to experience sharply higher relative rates of unemployment. Estimated nonwhite unemployment rates ranged from two to three times those for whites during the 1980-87 period.

**TABLE II.A**

**LABOR FORCE STATUS**
**1980 AND 1987**
**MICHIGAN**

**(Data in Thousands)**

| | 1980 | 1987 | NUMBER CHANGE | PERCENT CHANGE |
|---|---|---|---|---|
| Total 16+ | | | | |
| Population | 6799 | 6930 | +131 | +1.9 |
| Labor Force | 4298 | 4523 | +225 | +5.2 |
| LF Participation Rate | 63.2 | 65.3 | +2.1 | XXX |
| Employment | 3757 | 4154 | +397 | +10.6 |
| Unemployment | 541 | 369 | -172 | -31.8 |
| Rate (percent) | 12.6 | 8.2 | -4.4 | XXX |
| Men 20+ | | | | |
| Population | 2917 | 3018 | +101 | +3.5 |
| Labor Force | 2291 | 2323 | +32 | +1.4 |
| LF Participation Rate | 78.6 | 77.0 | -1.6 | XXX |
| Employment | 2005 | 2155 | +15.0 | +7.5 |
| Unemployment | 286 | 168 | -118 | -41.3 |
| Rate (percent) | 12.5 | 7.2 | -5.2 | XXX |
| Women 20+ | | | | |
| Population | 3163 | 3318 | +155 | +4.9 |
| Labor Force | 1572 | 1836 | +264 | +16.8 |
| LF Participation Rate | 49.7 | 55.3 | +5.6 | XXX |
| Employment | 1408 | 1703 | +295 | +21.0 |
| Unemployment | 164 | 133 | -31 | -18.9 |
| Rate (percent) | 10.4 | 7.2 | -3.2 | XXX |
| Youth 16-19 | | | | |
| Population | 720 | 595 | -125 | -17.4 |
| Labor Force | 435 | 364 | -71 | -16.3 |
| LF Participation Rate | 60.4 | 61.2 | +0.8 | XXX |
| Employment | 344 | 296 | -48 | -14.0 |
| Unemployment | 91 | 68 | -23 | -25.3 |
| Rate (percent) | 20.9 | 18.7 | -2.2 | XXX |

TABLE II.A, (Continued)

LABOR FORCE STATUS
1980 AND 1987
MICHIGAN

(Data in Thousands)

| | 1980 | 1987 | NUMBER CHANGE | PERCENT CHANGE |
|---|---|---|---|---|
| Seniors 55+ | | | | |
| Population | 1772 | 1789 | +17 | +1.0 |
| Labor Force | 537 | 475 | -62 | -11.5 |
| LF Participation Rate | 30.3 | 26.6 | -3.7 | XXX |
| Employment | 514 | 455 | -59 | -11.5 |
| Unemployment | 23 | 21 | -2 | -8.7 |
| Rate (percent) | 4.3 | 4.6 | +0.3 | XXX |
| White 20+ | | | | |
| Population | 5304 | 5460 | +156 | +2.9 |
| Labor Force | 3397 | 3618 | +221 | +6.5 |
| LF Participation Rate | 64.0 | 66.3 | +2.3 | XXX |
| Employment | 3048 | 3407 | +359 | +11.8 |
| Unemployment | 349 | 211 | -138 | -39.5 |
| Rate (percent) | 10.3 | 5.8 | -4.5 | XXX |
| Nonwhite 20+ | | | | |
| Population | 776 | 839 | +63 | +8.1 |
| Labor Force | 467 | 529 | +62 | +13.3 |
| LF Participation Rate | 60.4 | 63.1 | +2.7 | XXX |
| Employment | 365 | 436 | +71 | +19.5 |
| Unemployment | 102 | 93 | -9 | -8.8 |
| Rate (percent) | 21.8 | 17.6 | -4.2 | XXX |

Source: Current Population Survey - Michigan
Bureau of Labor Statistics

## LABOR MARKET PROJECTIONS

Growth in the state's labor force and employment is expected over the next two years. However, the steady statewide reductions since 1982 in the levels and rates of unemployment are not projected to continue through PY 1989. The state jobless rate is expected to bottom out at 7.5 percent in PY 1988, but expected cutbacks in manufacturing employment and continued labor force gains should result in an unemployment rate rise to eight percent in PY 1989. Over the two year period, statewide employment is projected to increase by three percent to 4,292,000 (see Table II.B), and the state labor force will grow by 133,000 or 2.9 percent.

**TABLE II.B**

**LABOR FORCE PROJECTIONS**

**MICHIGAN**

| | PY 1987<br>7/87-6/88 | PY 1988<br>7/88-6/89 | PY 1989<br>7/89-6/90 |
|---|---|---|---|
| Labor Force | 4532 | 4592 | 4665 |
| Employment | 4169 | 4248 | 4292 |
| Unemployment | 363 | 344 | 373 |
| Rate (percent) | 8.0 | 7.5 | 8.0 |

Source: Michigan Employment Security Commission

Note: Data in Thousands

TABLE II.C

CIVILIAN LABOR FORCE BY AGE, SEX AND RACE
PROGRAM YEAR 1989

STATE OF MICHIGAN

| | CIVILIAN LABOR FORCE | TOTAL EMPLOYMENT | UNEMPLOYMENT | |
|---|---|---|---|---|
| | | | NUMBER | RATE |
| Area Total | 4665000 | 4291800 | 373200 | 8.0 |
| 16-19 | 388671 | 317230 | 71441 | 18.4 |
| 20-21 | 276685 | 243112 | 33573 | 12.1 |
| 22-54 | 3488681 | 3241585 | 247096 | 7.1 |
| 55-64 | 432457 | 412556 | 19901 | 4.6 |
| 65+ | 78506 | 77318 | 1188 | 1.5 |
| Male | 2541621 | 2328205 | 213416 | 8.4 |
| Female | 2123379 | 1963596 | 159783 | 7.5 |
| White | 4088038 | 3811507 | 276531 | 6.8 |
| Nonwhite | 576962 | 480294 | 96668 | 16.8 |

Source: Michigan Employment Security Commission,
Bureau of Research and Statistics

Note: Detail may not sum to area total due to rounding.

## III. INDUSTRY EMPLOYMENT

### INDUSTRY STRUCTURE

Identification of current area employment structure and trends over time is an important task of local human resource planners in the development of effective employment and training programs. The following analysis is designed to provide insight into the current level and industrial composition of employment and to identify the dominant sources of employment growth over time at the state level.

For a general overview of industry employment composition, Figure 3 compares the statewide structure to that of the nation. The most significant difference between industry employment in Michigan and the U.S. is the larger proportion of jobs supplied by the state's manufacturing sector. During PY 1987, manufacturing jobs accounted for 25 percent of total industry employment statewide, well in excess of the national percentage of 19 percent. Employment is relatively greater nationally in construction, transportation, communications and utilities, wholesale trade, finance, insurance, real estate and services. A further distinction between national and statewide employment is that nationally the service industry has surpassed manufacturing as the major sector industry employer, while statewide, manufacturing sector employment remains well above the level supplied by the service industry.

More detailed analysis of industry employment structure can be made using data from the MESC ES-202 system. This data is very comprehensive since it is based on employment information collected on over 90 percent of Michigan firms. The data is useful in facilitating the identification of specific industry sources of concentrated employment necessary for OJT marketing, job placement and job development activities. Table III.A presents private industry employment data from the 3rd quarter 1987 ES-202 system at the two-digit Standard Industrial Classification (SIC) level. An examination of the data shows that nearly one-third of the state's private industry employment is concentrated in four industries. These industries are transportation equipment, 10.3 percent; medical and other health, 8.8 percent; eating and drinking places, 7.6 percent; and business services, 6.1 percent. Table III.B lists the state's top ten industries, which represent 53.4 percent of private wage and salary employment.

FIGURE 2

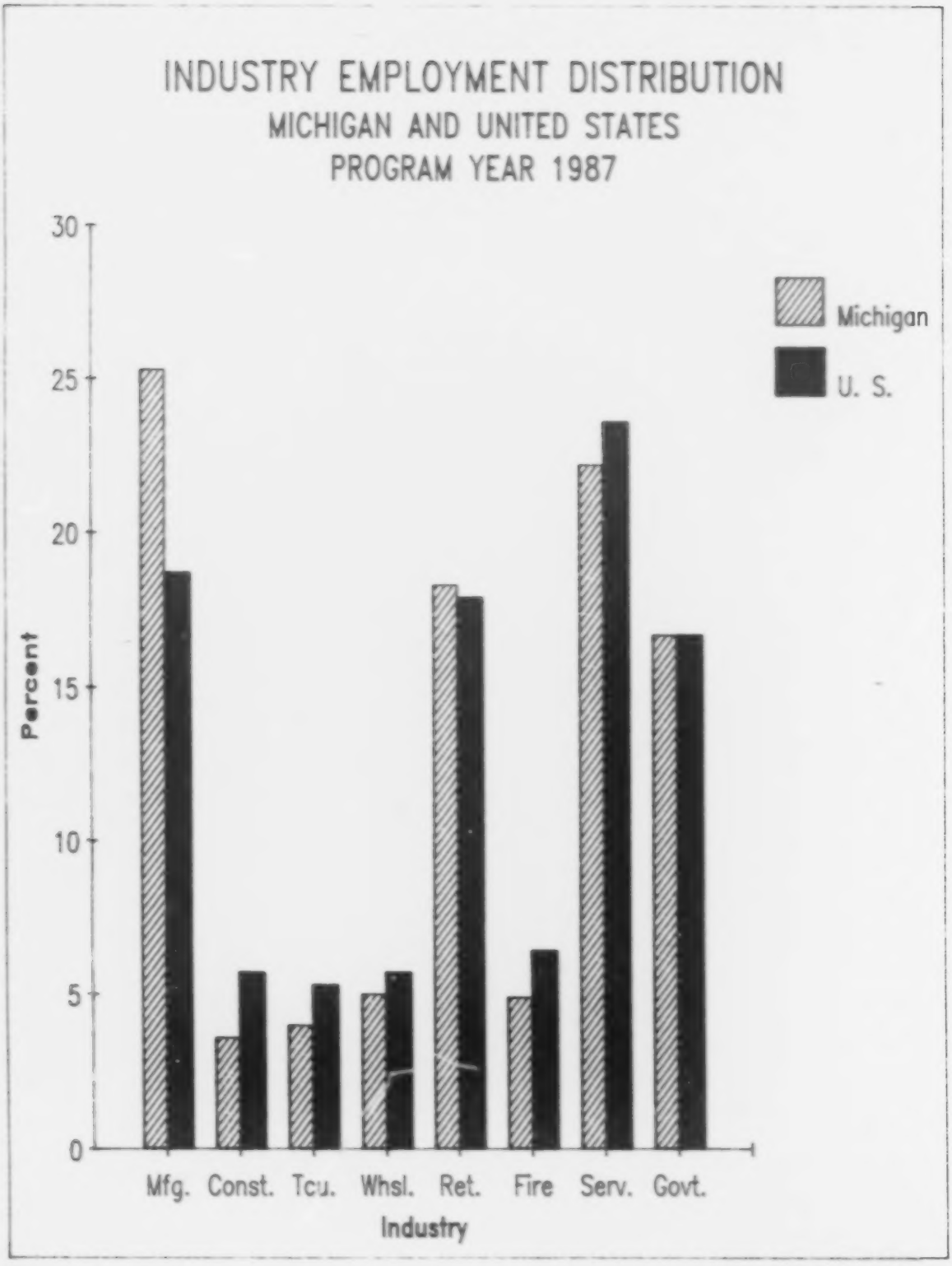

INDUSTRY EMPLOYMENT DISTRIBUTION
MICHIGAN AND UNITED STATES
PROGRAM YEAR 1987
30
25
20
15
10
5
0
Percent
Michigan
U. S.
Mfg.
Const.
Tcu.
Whsl.
Ret.
Fire
Serv.
Govt.
Industry

TABLE III.A

PRIVATE INDUSTRY EMPLOYMENT ANALYSIS
1987

STATE OF MICHIGAN

| SIC | INDUSTRY TITLE | 3RD QUARTER EMPLOYMENT | |
|---|---|---|---|
| | | NUMBER | PERCENT OF TOTAL |
| | TOTAL | 3094394 | 100 |
| 01 | AGRICULTURE-CROPS | 15738 | 0.5 |
| 02 | AGRICULTURE-LIVESTOCK | 1558 | 0.1 |
| 07 | AGRICULTURE SERVICES | 15859 | 0.5 |
| 08 | FORESTRY | 791 | 0.0 |
| 09 | FISHERIES | 150 | 0.0 |
| 10 | METAL MINING | 3056 | 0.1 |
| 13 | CRUDE PETROLEUM AND NAT GAS | 4373 | 0.1 |
| 14 | NONMETALLIC MINING, QUARRYING | 3085 | 0.1 |
| 15 | GENERAL BUILDING CONTRACTORS | 32999 | 1.1 |
| 16 | GENERAL CONTRACTORS, EXC BLDG | 16142 | 0.5 |
| 17 | SPECIAL TRADE CONTRACTORS | 85672 | 2.8 |
| 20 | FOOD AND KINDRED PRODUCTS | 47421 | 1.5 |
| 21 | TOBACCO MANUFACTURING | 3 | 0.0 |
| 22 | TEXTILE MILL PRODUCTS | 1246 | 0.0 |
| 23 | APPAREL, TEXTILE PRODUCTS | 19606 | 0.6 |
| 24 | LUMBER AND WOOD PROD | 14839 | 0.5 |
| 25 | FURNITURE AND FIXTURES | 31139 | 1.0 |
| 26 | PAPER AND ALLIED PRODUCTS | 20891 | 0.7 |
| 27 | PRINTING AND PUBLISHING | 39245 | 1.3 |
| 28 | CHEMICAL AND ALLIED PRODUCTS | 40828 | 1.3 |
| 29 | PETROLEUM AND COAL PRODUCTS | 3336 | 0.1 |
| 30 | RUBBER, MISC PLASTIC PRODUCTS | 45696 | 1.5 |
| 31 | LEATHER PRODUCTS | 2393 | 0.1 |
| 32 | STONE, CLAY, GLASS PROD | 17932 | 0.6 |
| 33 | PRIMARY METAL PROD | 47177 | 1.5 |
| 34 | FABRICATED METAL PROD | 113787 | 3.7 |
| 35 | MACHINERY, NONELECTRICAL | 119975 | 3.9 |
| 36 | ELECTRICAL MACHINERY | 34806 | 1.1 |
| 37 | TRANSPORTATION EQUIP | 318922 | 10.3 |
| 38 | MEASURING AND CONTROLLING INSTR | 14752 | 0.5 |
| 39 | MISC MANUFACTURING | 7377 | 0.2 |
| 40 | RAILROADS, RAILWAY EXPRESS | 185 | 0.0 |
| 41 | LOCAL INTERURBAN TRANSIT | 4539 | 0.1 |
| 42 | TRUCKING AND WAREHOUSING | 44346 | 1.4 |
| 44 | WATER TRANSPORTATION | 2153 | 0.1 |
| 45 | AIR TRANSPORTATION | 14771 | 0.5 |

TABLE III.A, (Continued)

PRIVATE INDUSTRY EMPLOYMENT ANALYSIS

| SIC | INDUSTRY TITLE | 3RD QUARTER EMPLOYMENT NUMBER | 3RD QUARTER EMPLOYMENT PERCENT OF TOTAL |
|---|---|---|---|
| 46 | PIPELINES | 295 | 0.0 |
| 47 | TRANSPORTATION SERVICES | 8267 | 0.3 |
| 48 | COMMUNICATIONS | 35008 | 1.1 |
| 49 | UTILITIES, SANITARY SERVICES | 35525 | 1.1 |
| 50 | WHOLESALE TRADE-DURABLES | 118878 | 3.8 |
| 51 | WHOLESALE TRADE-NONDURABLES | 71933 | 2.3 |
| 52 | BUILDING MATERIALS | 28194 | 0.9 |
| 53 | GENERAL MERCHANDISE, TOTAL | 97526 | 3.2 |
| 54 | FOOD AND DAIRY STORES | 97681 | 3.2 |
| 55 | AUTO DEALERS, GAS STATIONS | 76208 | 2.5 |
| 56 | APPAREL AND ACCESSORIES | 40804 | 1.3 |
| 57 | FURNITURE | 26792 | 0.9 |
| 58 | EATING AND DRINKING PLACES | 235432 | 7.6 |
| 59 | MISC RETAIL TRADE STORES | 78307 | 2.5 |
| 60 | BANKING | 55582 | 1.8 |
| 61 | CREDIT AGENCIES | 27334 | 0.9 |
| 62 | SECURITY AND COMMODITY BROKERS | 6779 | 0.2 |
| 63 | INSURANCE | 38840 | 1.3 |
| 64 | INSURANCE AGENTS AND BROKERS | 17318 | 0.6 |
| 65 | REAL ESTATE | 28846 | 0.9 |
| 66 | REAL ESTATE INSURANCE AND LOAN OFF | 217 | 0.0 |
| 67 | HOLDING AND OTHER INVESTMENT OFF | 2926 | 0.1 |
| 70 | HOTELS AND LODGING PLACES | 33474 | 1.1 |
| 72 | OTHER PERSONAL SERVICES, TOTAL | 37290 | 1.2 |
| 73 | BUSINESS SERVICES | 187653 | 6.1 |
| 75 | AUTOMOBILE REPAIR SERVICES | 28045 | 0.9 |
| 76 | OTHER REPAIR SERVICES | 13086 | 0.4 |
| 78 | MOTION PICTURES, THEATERS | 5483 | 0.2 |
| 79 | MISC ENTERTAINMENT | 30892 | 1.0 |
| 80 | MEDICAL, OTHER HEALTH | 273183 | 8.8 |
| 81 | LEGAL SERVICES | 23896 | 0.8 |
| 82 | EDUCATION SERVICES | 17831 | 0.6 |
| 83 | SOCIAL SERVICES | 45780 | 1.5 |
| 84 | MUSEUMS, ART GALLERIES, ZOOS | 1725 | 0.1 |
| 86 | NONPROFIT ORGANIZATIONS | 26123 | 0.8 |
| 88 | PRIVATE HOUSEHOLDS | 3263 | 0.1 |
| 89 | OTHER PROF, RELATED SERVICES | 51166 | 1.7 |

P - Protected Information

Source: Michigan Employment Security Commission
Bureau of Research and Statistics - ES202

TABLE III.B

TOP TEN
PRIVATE INDUSTRIES IN EMPLOYMENT
1987

MICHIGAN

| SIC | INDUSTRY TITLE | 3RD QUARTER EMPLOYMENT NUMBER | PERCENT OF TOTAL |
|---|---|---|---|
| | STATEWIDE TOTAL | 3,094,394 | 100.0 |
| 37 | TRANSPORTATION EQUIP. | 318,922 | 10.3 |
| 80 | MEDICAL OTHER HEALTH | 273,183 | 8.8 |
| 58 | EATING AND DRINKING PLACES | 235,432 | 7.6 |
| 73 | BUSINESS SERVICES | 187,653 | 6.1 |
| 35 | NONELECTRICAL MACHINERY | 119,975 | 3.9 |
| 50 | WHOLESALE TRADE-DURABLES | 118,878 | 3.8 |
| 34 | FABRICATED METAL PRODUCTS | 113,787 | 3.7 |
| 54 | FOOD AND DAIRY STORES | 97,681 | 3.2 |
| 53 | GENERAL MERCHANDISE STORES | 97,526 | 3.2 |
| 17 | SPECIAL TRADE CONSTRUCTION | 85,672 | 2.8 |

Source: Michigan Employment Security Commission
Bureau of Research and Statistics - ES202

## INDUSTRY EMPLOYMENT TRENDS

Once area industry structure is analyzed and prominent employment sectors identified, an important second step in determining employment opportunities is the assessment of recent trends in industry employment. Table III.C reflects Current Employment Statistics (CES) survey data for PY 1980-1987. Current Employment Statistics data is based on the monthly BLS-790 survey which collects employment and payroll data on area firms. Absolute and relative job generating performance can be identified by comparing industry employment levels over time.

Examination of Table III.D reveals that overall private wage and salary employment in the state increased by approximately 319,925 jobs, or 11.5 percent over the 1980-1987 period. Several industries experienced significant job growth in terms of absolute numbers. These industries included rubber and plastics, services, wholesale durables, other retail trade and finance, real estate and insurance.

One caveat to observe when analyzing this industry data is the impact of a MESC reclassification of industry codes from 1983 through 1987 for some manufacturing and nonmanufacturing firms. In the SIC reclassification process, businesses are reviewed periodically for major industry function and product sales. Based upon this review, industry codes may change. Total durable and nondurable wholesale trade employment was significantly increased by the reclassification process, with corresponding decreases in other industry totals. Since the data for the years prior to 1983 do not reflect these changes, the increased employment levels between 1980 and 1987 are not completely due to real job growth. Therefore, although employment in wholesale trade has increased between 1980 and 1987, the magnitude is not as great as is indicated by the figures. However, employment growth in wholesale trade-durables does appear to be strong since job gains have continued since 1983.

Another caution to observe when analyzing industry data is that industry employment changes may not be indicative of all firms in a particular industry, or for that industry in all geographic areas. For example, much of the significant employment increase experienced in the other transportation equipment industry resulted from a single plant expansion in the Detroit metropolitan area. Therefore, the increase did not represent an across-the-board increase for all firms in that industry throughout the state.

**TABLE III.C**

**AREA INDUSTRY EMPLOYMENT TRENDS**

**MICHIGAN**

| INDUSTRY NAME | SIC | PY 1980 | PY 1982 | PY 1984 | PY 1987 |
|---|---|---|---|---|---|
| Mining | 14 | 12099 | 9010 | 10027 | 9922 |
| Construction | 15-17 | 109965 | 86695 | 98144 | 124239 |
| Food Products | 20 | 47558 | 45517 | 45911 | 45030 |
| Textile Products | 22-23 | 19446 | 17765 | 21770 | 21355 |
| Lumber/Wood Prods. | 24 | 11127 | 10064 | 12407 | 13329 |
| Furniture | 25 | 22611 | 21213 | 25650 | 32126 |
| Paper | 26 | 21431 | 20063 | 21051 | 20493 |
| Printing | 27 | 32843 | 33136 | 37444 | 39148 |
| Chemicals | 28 | 43594 | 40341 | 40784 | 41502 |
| Refining | 29 | 3268 | 3193 | 2368 | 2325 |
| Rubber/Plastics | 30 | 28884 | 28536 | 39577 | 48218 |
| Leather | 31 | 3435 | 2890 | 2708 | 2400 |
| Stone/Clay/Glass | 32 | 18443 | 15041 | 17337 | 17562 |
| Primary Metals | 33 | 65484 | 48902 | 53097 | 48580 |
| Fab. Metals | 34 | 115297 | 98921 | 121903 | 117373 |
| Nonelect. Mach. | 35 | 156107 | 119502 | 132886 | 120830 |
| Elect. Mach. | 36 | 33529 | 30260 | 35137 | 35814 |
| Motor Veh. & Eqpt. | 371 | 326436 | 285722 | 334518 | 295782 |
| Other Trans. Eqpt. | 372-379 | 14695 | 16883 | 19530 | 21498 |
| Instruments | 38 | 13551 | 12853 | 14581 | 14502 |
| Misc. Durables | 39 | 8419 | 6717 | 7365 | 7411 |
| Railroads | 40 | 13708 | 11258 | 9830 | 7990 |
| Trans. Commun. & Ut. | 41-49 | 135001 | 129604 | 132352 | 142396 |
| Wholesale Durables | 50 | 102170 | 95746 | 108579 | 118165 |
| Wholesale Nondur. | 51 | 57340 | 54568 | 61689 | 69400 |
| Department Stores | 53 | 86681 | 82925 | 89828 | 98059 |
| Other Retail Trade | 52,54-59 | 476129 | 463409 | 506827 | 581230 |
| Fin., R.E. and Ins. | 60-67 | 155966 | 151185 | 158428 | 182112 |
| Services | 70-89 | 648037 | 657269 | 731365 | 824388 |

Source: Michigan Employment Security Commission, CES

With these factors in mind, once industries experiencing long-term growth are identified (Table III.D), it is then necessary for human resource planners with agencies providing on-the-job training and short-term classroom training to determine whether employment in these industries continues to grow in the short-run as well. For example, some of the industries in Table III.D, particularly in manufacturing, have not added employment over the last two years or are not expected to grow in the short term. Conversely, other industries experiencing current growth that have not achieved net employment growth over the longer run may simply be reabsorbing a pool of labor which was laid off during the recession of the early 1980's. In addition, firms heavily unionized, particularly those in manufacturing, frequently have to abide by recall rights provisions of their collective bargaining agreements before hiring new workers.

TABLE III.D

LONG RUN
FAVORABLE EMPLOYMENT
INDUSTRIES

MICHIGAN

| SIC | INDUSTRY TITLE | CHANGE PY 1980 TO PY 1987 | |
|---|---|---|---|
| | | NUMBER | PERCENT |
| | TOTAL, ALL INDUSTRIES | 319925 | 11.5 |
| 15-17 | CONSTRUCTION | 14274 | 13.0 |
| 23 | APPAREL, TEXTILE PRODUCTS | 1909 | 9.8 |
| 24 | LUMBER AND WOOD PRODUCTS | 2202 | 19.8 |
| 25 | FURNITURE AND FIXTURES | 9515 | 42.1 |
| 27 | PRINTING AND PUBLISHING | 6305 | 19.2 |
| 30 | RUBBER, MISC. PLASTIC PRODUCTS | 19334 | 66.9 |
| 34 | FABRICATED METAL PRODUCTS | 2076 | 1.8 |
| 36 | ELECTRICAL MACHINERY | 2285 | 6.8 |
| 372-379 | OTHER TRANSPORTATION EQUIPMENT | 6803 | 46.3 |
| 38 | MEASURING AND CONSTR. INSTRUMENTS | 951 | 7.0 |
| 41-49 | TRANS., COMM., UTILITIES | 7395 | 5.5 |
| 50 | WHOLESALE-DURABLES | 15995 | 15.7 |
| 51 | WHOLESALE-NONDURABLES | 12060 | 21.0 |
| 53 | DEPARTMENT STORES | 11378 | 13.1 |
| 52,54-59 | OTHER RETAIL TRADE | 105101 | 22.1 |
| 60-67 | FINANCE, REAL EST., INS. | 26146 | 16.8 |
| 70-89 | SERVICES | 176351 | 27.2 |

Source: Michigan Employment Security Commission
Bureau of Research and Statistics

Planners should examine industries with positive long-term employment patterns and continued job growth over the last two years, as those may offer good potential for hiring graduates of training programs. Payroll expansion among such industries will have been more continuous and external recruitment efforts to fill expansion needs may be taking place. Table III.E reflects those long-run growth industries which also recorded job growth over the last three years. Although, all of these industries are not necessarily target industries for newly trained workers, those industries which are currently the best targets for employment and training are services (business, other professional and personal), other retail trade (eating and drinking places), plastic products, department stores and finance, real estate and insurance.

TABLE III.E

FAVORABLE EMPLOYMENT
INDUSTRIES

MICHIGAN

| SIC | INDUSTRY TITLE | EMPLOYMENT PY 1984 | EMPLOYMENT PY 1987 | NUMERIC CHANGE | VERT. PERCENT DIST. |
|---|---|---|---|---|---|
| | TOTAL | 1989883 | 2259481 | 269598 | 100.0 |
| 15-17 | CONSTRUCTION | 98144 | 124239 | 26095 | 9.7 |
| 25 | FURNITURE AND FIXTURES | 25650 | 32126 | 6476 | 2.4 |
| 27 | PRINTING AND PUBLISHING | 37444 | 39148 | 1704 | 0.6 |
| 30 | PLASTIC PRODUCTS | 39577 | 48218 | 8641 | 3.2 |
| 41-49 | TRANS., COMM., UTILITIES | 132352 | 142396 | 10044 | 3.7 |
| 50 | WHOLESALE-DURABLES | 108579 | 118165 | 9586 | 3.6 |
| 51 | WHOLESALE-NONDURABLES | 61689 | 69400 | 7711 | 2.9 |
| 53 | DEPARTMENT STORES | 89828 | 98059 | 8231 | 3.1 |
| 52,54-59 | OTHER RETAIL TRADE | 506827 | 581230 | 74403 | 27.6 |
| 60-67 | FINANCE, REAL EST., INSURANCE | 158428 | 182112 | 23684 | 8.8 |
| 70-89 | SERVICES | 731365 | 824388 | 93023 | 34.5 |

Source: Michigan Employment Security Commission
Bureau of Research and Statistics

In fact, these industries accounted for nearly 74 percent of the employment growth for the industries reflected in Table III.E. Particularly outstanding is the services industry which registered the fastest rate of growth of any major industry in Michigan over the last decade, due to job gains in business, legal, social and other professional services. Other retail trade industry which include eating and drinking places, food and dairy stores and all other retail establishments, suffered employment losses during the recent recession but has rebounded strongly since PY 1984.

Although reflected in Table III.E, the wholesale trade industry is not targeted, because most of the employment growth indicated resulted from the MESC industry reclassification process. In addition, the construction industry is not targeted due to its highly seasonal and cyclical nature.

## INDUSTRY PROJECTIONS

As Table III.F indicates, industry employment projections through PY 1989 show above average job growth in all the targeted industries. Wage and salary employment between PY 1987 and PY 1989 is expected to increase by nearly 3.3 percent, or 123,000 jobs. This growth will be concentrated in the service-producing industries, particularly services, trade and finance, real estate and insurance.

Between PY 1987-1989, services employment is expected to increase by 49,000, representing nearly 40 percent of nonagricultural job growth. Industries within services expected to provide increased job opportunities include business and legal services, social services, (i.e., day care and group homes), and other professional services, (i.e., accounting, bookkeeping and engineering). Overall, the health services industry is also expected to experience employment increases, although its various sectors should experience widely different growth prospects. The health service industry is expected to grow given the growth and aging of the population, advances in medical technology and public support for life-quality health care. However, there is considerable uncertainty as to how rapid future growth will be and what the employment implications are likely to be given the industry's changing structure as financial incentives for providing and using health services are transformed. The wholesale and retail trade industries are expected to provide additional job opportunities, particularly eating and drinking places, and miscellaneous retail trade, (i.e., drug and liquor stores, sporting goods and florists). Over the two-year period, job gains in services and trade will account for nearly two-thirds of the employment growth in the service producing industries.

TABLE III.F

INDUSTRY EMPLOYMENT PROJECTIONS

MICHIGAN

(Data in Thousands)

| | PY 1987 | PY 1988 | PY 1989 | CHANGE PY 1987 TO PY 1989 NUMBER | CHANGE PY 1987 TO PY 1989 PERCENT |
|---|---|---|---|---|---|
| Total | 3728 | 3797 | 3851 | 123 | 3.3 |
| Goods Producing Industries | 1078 | 1074 | 1073 | -5 | -0.5 |
| Manufacturing | 943 | 935 | 934 | -9 | -1.0 |
| Construction and Mining | 135 | 139 | 139 | 4 | 3.0 |
| Service Producing Industries | 2650 | 2723 | 2777 | 127 | 4.8 |
| Trans.,Commun.,Utils. | 151 | 153 | 154 | 3 | 2.0 |
| Wholesale Trade | 188 | 190 | 191 | 3 | 1.6 |
| Retail Trade | 681 | 701 | 714 | 33 | 4.8 |
| Finance,Ins.,Real Estate | 183 | 191 | 196 | 13 | 7.1 |
| Services | 826 | 850 | 875 | 49 | 5.9 |
| Government | 622 | 638 | 647 | 25 | 4.0 |

Source: Michigan Employment Security Commission
Bureau of Research and Statistics

## IV. OCCUPATIONAL EMPLOYMENT PROJECTIONS

### OCCUPATIONAL TRENDS

The Michigan Employment Security Commission (MESC) generates detailed statistics on projected occupational employment and related information on occupational demand and supply for Michigan and many of its subregions. The appendix of this report contains a detailed table of occupational projections for Michigan for the period 1985-1995, as well as lists of occupations with largest job growth, fastest growth and largest decline.

Note that the occupational tables included in this report deal only with the demand side of the labor market equation, and do not cover the crucial supply-related issues important to the selection of appropriate training programs. Rather, they are intended to introduce the reader to the data and concepts included in the Michigan and Area Occupational Supply/Demand Reports.

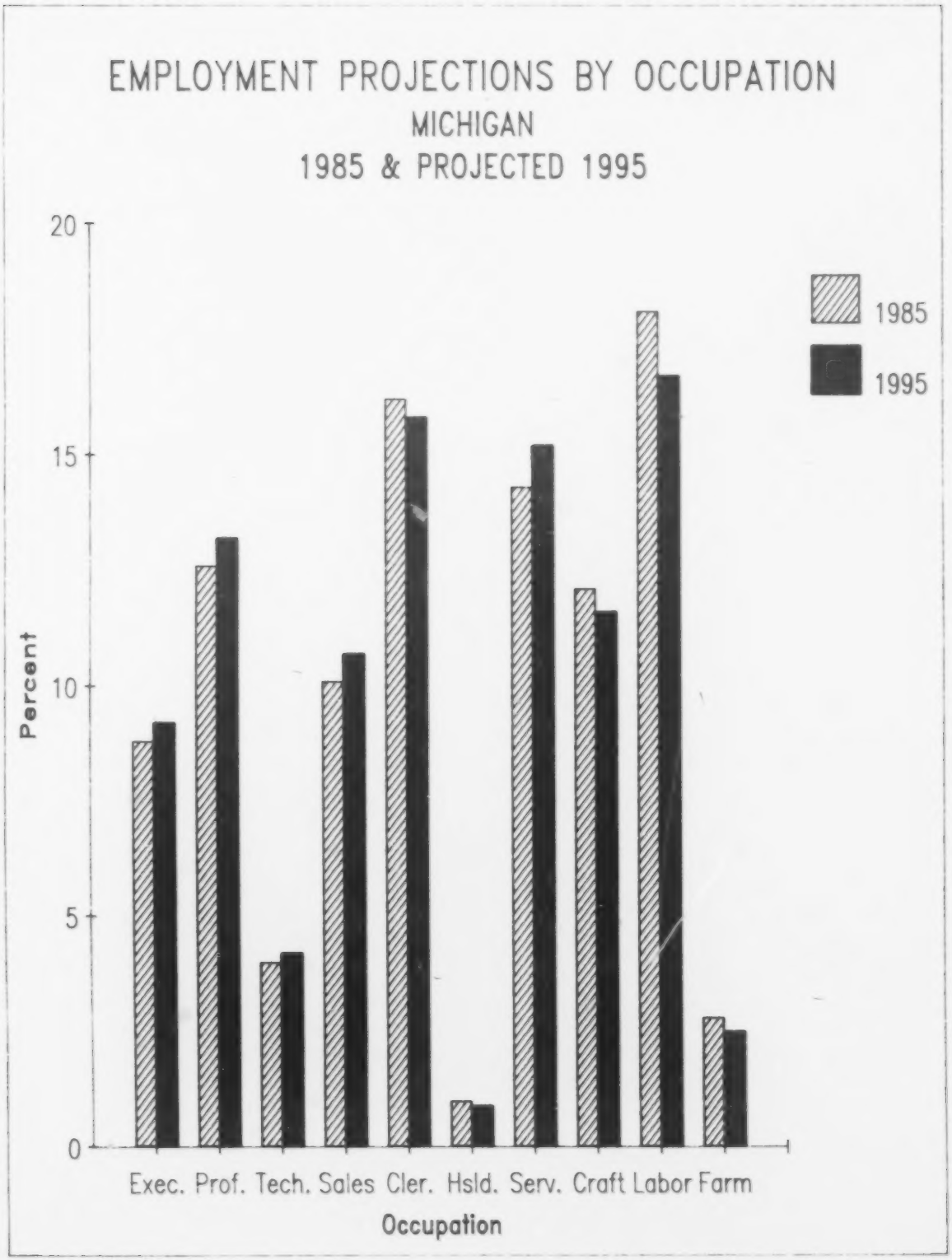
According to the most recent projections of the Michigan Employment Security Commission, occupational growth trends over the 1985-95 period are expected to change from the trends of the recent past for some broad occupational groups. Some occupations that expanded rapidly from the early 1970's to the mid-1980's are still expected to grow faster than average through the mid-1990's while others which experienced rapid growth in the past are expected to have slower growth rates.

Many occupations that expanded rapidly during the 1970's experienced significant declines during the 1980-82 recession, and are expected to have slower than average growth rates through the mid 1990's. These include clericals, operators-laborers, and craft occupations. These changes result from a projected slowing of total employment growth, from changes in industry trends, and from technological change affecting the occupational structures of many industries.

Employment of workers in private households, on farms, and in forestry and fishery occupations is expected to continue its long-term decline. However, the rate of decline is projected to be considerably slower than the rate of decline over the period 1975-85.

The changing occupational structure in Michigan employment is reflected in the following graph which compares 1985 and projected 1995 occupational distribution. Although most of the major occupational groups, with the exception of farming will experience employment growth between 1985-95, changes in employment concentration will be experienced in every group. None of the changes, however, will be significant enough to alter the size ranking of the major groups.

FIGURE 3


EMPLOYMENT PROJECTIONS BY OCCUPATION
MICHIGAN
1985 & PROJECTED 1995
20
15
10
5
0
Percent
1985
1995
Exec. Prof. Tech. Sales Cler. Hsld. Serv. Craft Labor Farm
Occupation

Over the 1985-95 period, service workers, except private household workers are projected to continue to grow faster than total employment. This occupational group is expected to account for more job growth than any other broad group, increasing its share of total employment from 14.3 percent in 1985 to 15.2 percent in 1995. The large number of new jobs expected to be added by service workers is a result of the continued shift of the economy from goods production to service production.

There are three major occupational groups which have the largest proportion of workers with a college education or specialized post-secondary technical training. These are expected to increase in employment faster than the average for all occupations, thus increasing their share of total employment through 1995. The first of these major groups is executive, administrative, and managerial workers, which is projected to increase by 15.5 percent over the period, compared with a 9.4 percent growth rate for total employment. The demand for these workers is expected to increase rapidly, as firms increasingly depend on trained management specialists. The second major group with specialized training which is expected to increase its share of total employment is comprised of professional workers. Professional workers are expected to increase by 71,350 over the decade, or 14.2 percent, as many occupations including computer-related engineering and health specialties are projected to surge. The third group, technicians and related workers is expected to experience one of the fastest growth rates (17.1 percent) of all the major occupational groups.

The number of sales workers is also projected to increase by 16.5 percent over the 1985-95 period, adding 23,300 jobs.

The five remaining major occupational categories are expected to experience below average growth rates, with two of the groups expected to continue their long-term decline. Administrative support workers, including clerical, is projected to grow more slowly than average through the mid 1990's. This group is expected to add 43,650 jobs over the 1985-95 period. The spread of computerized office and related equipment, as well as other related office automation has affected the employment of clerical workers and should continue at an accelerated pace through the mid 1990's. The automation of clerical tasks should slow the growth of many detailed occupations and cause others, such as payroll and timekeeping clerks to experience declines.

Precision production, craft,and repair worker employment is expected to grow more slowly than the average for all occupations from 1985 to 1995. Their share of total employment is expected to decline by half a percentage point over the decade, from 12.1 to 11.6 percent. The employment of these workers is closely related to the growth of the construction and manufacturing industries, in which these workers are most concentrated. Manufacturing is expected to grow slowly, and construction is projected to show only average growth over the ten-year period, thereby slowing the growth of the precision production, craft, and repair occupations.

Employment of operators, fabricators, and laborers is projected to increase by only 0.8 percent from 1985-95. Nevertheless, this represents a change from the most recent period, when employment for these workers actually declined. Shrinking employment in many of the manufacturing industries in which these workers were concentrated was a result of the 1980-82 recession period. This is most notably reflected in the significant decline in the manufacturing share of nonagricultural employment, from 31.9 percent in 1979 to 28.1 percent in 1985. Over the 1985-95 period, manufacturing is expected to grow slowly. An array of new technologies in manufacturing and robotics is expected to affect many detailed occupations in this major occupational group, including machine operators, assemblers, and industrial truck and tractor operators.

## OCCUPATIONS WITH THE LARGEST JOB GROWTH

Table IV.A lists 20 Michigan occupations with the largest projected job growth for the period 1985-95. These occupations account for approximately 44 percent of the projected total job growth between 1985-95. In general, these occupations are already numerically large, and most have projected rates of growth that are average or higher. However, several are projected to grow more slowly than average, but due to their current employment size will add significant numbers of new jobs over the 1985-95 period. These occupations include janitors, general office clerks and secretaries. Collectively these 20 fastest-growing occupations accounted for nearly 26 percent of total employment in 1985, a proportion expected to increase to over 27 percent in 1995.

Note that the detailed occupations in the following tables do not include residual ("All Other") categories for the major occupational groups. The residual categories are often very large because they contain a wide range of job titles and therefore account for much of the group's employment.

TABLE IV.A

MICHIGAN

OCCUPATIONS WITH LARGEST JOB GROWTH

1985-95

| OCCUPATION | EMPLOYMENT CHANGE 1985-1995 | |
|---|---|---|
| | NUMBER | PERCENT |
| Total Occupations | 374675 | 9.4 |
| Registered Nurses | 16900 | 32.0 |
| Salespersons, Retail | 16675 | 13.0 |
| Cashiers | 16350 | 22.7 |
| Waiters & Waitresses | 12325 | 18.9 |
| Truck Drivers | 11900 | 14.3 |
| Computer Programmers | 9175 | 50.2 |
| Nursing Aides & Orderlies | 9050 | 18.0 |
| Accountants & Auditors | 7225 | 24.9 |
| Janitors & Cleaners In. Man. | 7050 | 7.7 |
| Teachers, Elementary | 6625 | 17.2 |
| Food Prep. & Serv. Workers | 5775 | 19.3 |
| Lawyers | 5550 | 30.9 |
| General Office Clerks | 5500 | 6.1 |
| Secretaries | 5400 | 5.1 |
| Food Preparation Workers | 5350 | 18.0 |
| Cooks, Ex. short Order | 5300 | 17.6 |
| Auto & Motorcycle Mechanic | 5125 | 18.9 |
| Guards | 5050 | 18.7 |
| Comp., Sys. Analysts, EDP | 4725 | 37.6 |
| Hand Packers & Packagers | 4200 | 29.0 |

## FASTEST GROWING OCCUPATIONS

Table IV.B shows the 20 fastest growing occupations. These occupations provide a different perspective on future occupational employment changes. Most of these occupations are increasing rapidly from relatively small employment levels and, therefore, are not included in the list of occupations with the largest job growth. Computer programmers and computer systems analysts are notable exceptions.

Nearly one-third of the fastest growing occupations in Michigan are aircraft and travel related. This is primarily due to significant expansion at Detroit Metropolitan Airport, as well as the general impact of deregulation on the air travel industry. Another noteworthy development is that approximately two-thirds of the fastest growing occupations require post-secondary and specialized technical training.

TABLE IV.B

MICHIGAN

FASTEST GROWING OCCUPATIONS

1985-95

| OCCUPATION | EMPLOYMENT CHANGE 1985-95 | |
|---|---|---|
| | NUMBER | PERCENT |
| Flight Attendants | 675 | 76.4 |
| Transp. Agents | 200 | 62.8 |
| Aircraft Pilots & Flt. Engrs. | 1050 | 60.0 |
| Secur. & Fin. Serv. Sales | 3075 | 51.7 |
| Computer Programmers | 9175 | 50.2 |
| Optometrists | 325 | 49.4 |
| Reserv. & Trans. Ticket Agents | 775 | 48.0 |
| Air. Mech. & Eng. Specialists | 575 | 47.0 |
| Actuaries | 75 | 44.9 |
| Data Process. & Eq. Repairers | 425 | 39.8 |
| Camera Oprs., TV & Movie | 100 | 38.6 |
| Computer Systems Analysts, EDP | 4725 | 37.6 |
| Paralegal Personnel | 400 | 37.3 |
| Prod., Direct., Actors, & Others | 200 | 36.4 |
| Law Clerks | 550 | 36.3 |
| Medical Assistants | 2350 | 36.0 |
| Employment Intevrs. | 625 | 35.9 |
| Electr. & Electro. Techns. | 2600 | 35.5 |
| Travel Clerks | 100 | 34.9 |
| Travel Agents | 950 | 34.5 |

## OCCUPATIONS WITH THE MOST EMPLOYMENT DECLINE

Table IV.C shows the 20 occupations expected to experience the most employment decline in Michigan. Approximately sixty percent of the occupations are industrial, blue collar jobs. These jobs are concentrated in industries which have suffered employment losses because of foreign competition and technological improvements. Other occupations expected to be adversely affected by technological changes are stenographers, statistical clerks and data-entry keyers.

**TABLE IV.C**

**MICHIGAN**

**OCCUPATIONS WITH MOST EMPLOYMENT DECLINE**

**1985-95**

| OCCUPATION | EMPLOYMENT DECLINE 1985-95 | |
|---|---|---|
| | NUMBER | PERCENT |
| Farmers | 7275 | 12.0 |
| Mach. Tool Cut. Oprs. | 5675 | 24.0 |
| Assemblers & Fabricators, Misc. | 5400 | 6.3 |
| Mach. Forming Oprs. | 5075 | 24.0 |
| Industrial Truck & Tractor Oprs. | 4825 | 19.3 |
| Stenographers | 2550 | 41.8 |
| Farm Workers | 2250 | 10.0 |
| Cleaners & Serv., Pvt. Hshld. | 1825 | 8.2 |
| Stock Clerks, Strm. & Ware. | 1825 | 7.7 |
| Data Entry Keyers, Ex. Comp. | 1475 | 11.6 |
| Forging Mach. Set-up Oprs. | 1450 | 26.8 |
| Welders & Cutters | 1450 | 10.7 |
| Blue Collar Workers / Suprvs. | 1450 | 2.2 |
| Tool & Die Makers | 1200 | 5.0 |
| Grinding Mach. Set-up Oprs. | 1175 | 13.5 |
| Lathe Mach. Set-up Oprs. | 1175 | 13.2 |
| College & University Faculty | 1050 | 5.0 |
| Drill Mach. Set-up Oprs. | 1000 | 15.4 |
| Press Mach. Set-up Oprs. | 825 | 18.0 |
| Inspectors, Testers & Graders, Oth. | 750 | 2.8 |

## V. JTPA TARGET POPULATION GROUPS

This chapter contains tables that are designed to provide employment and training planners with the basic information on target population groups as specified in Title II of the Job Training Partnership Act (JTPA). Title II mandates job training programs for economically disadvantaged and other individuals facing barriers to employment to facilitate their entry into permanent private sector employment. This chapter has been designed to meet the planning guidelines established by the Michigan Department of Labor, Bureau of Employment and Economic Development, in order to implement the provisions of Title II.

The tables in Section 1 contain information on the eligible population in the service delivery area. The eligible population consists of those individuals who are economically disadvantaged. This is the primary target group as JTPA legislation requires that at least 90 percent of participants served be economically disadvantaged. The tables provide 1986 demographic information on the local area's economically disadvantaged population and labor force. In addition, cross-tabulated information by age, race and sex on the population and labor force is provided. This information may be used to evaluate the local area's universe of need in terms of overall funding and distribution of services. The information is also a necessary component in the determination of program planning and delivery.

The second section of the chapter includes tables which are presented to assist in analyzing other target population groups that may be served under the JTPA "ten percent provision". This provision stipulates that up to ten percent of the participants in all training programs may be individuals who are not economically disadvantaged but have encountered barriers to employment. The tables within this section provide estimates for those groups specifically identified in the legislation. However, the legislation does not limit its coverage to those specifically identified. The information in these tables may be used to evaluate those groups within the "ten percent provision" category most in need of training services.

The third section in the chapter contains special tables that address JTPA operational and equity issues. The first table reflects the ratio of government to wage and salary employment. This information is used to regulate the distribution of participants in on-the-job training between private and government employment. The second table reflects the ratio of private employment to population. This information is one of several criteria used to justify administrative costs in excess of the 30 percent limitation. The last table in the section provides information on welfare recipients and may be useful for additional program planning.

For a more complete description of the source data and methodology, please refer to the following chapter on table descriptions.

SECTION 1

JTPA TITLE II
ELIGIBLE POPULATION

TABLE V.A

TITLE II ELIGIBLE POPULATION
LABOR FORCE ADJUSTED ECONOMICALLY DISADVANTAGED
1986

MICHIGAN

| | TOTAL ECONOMICALLY DISADVANTAGED | LABOR FORCE ADJUSTED ECONOMICALLY DISADVANTAGED | |
|---|---|---|---|
| | | NUMBER | PERCENT DISTRIBUTION |
| Total 14+[1] | 1093622 | 658248 | 100.0 |
| Male | 411551 | 295779 | 44.9 |
| Female | 682071 | 361912 | 55.0 |
| Age Group | | | |
| 14-15 | 51385 | N.A | N.A. |
| 16-19 | 118393 | 66154 | 10.1 |
| 20-21 | 70460 | 52378 | 8.0 |
| 22-54 | 641868 | 490979 | 74.6 |
| 55-64 | 94095 | 39865 | 6.1 |
| 65+ | 117421 | 8872 | 1.3 |
| Race/Ethnic | | | |
| White | 732594 | 459405 | 69.8 |
| Black | 317515 | 171768 | 26.1 |
| American Indian or Alaskan Native | 9663 | 5782 | 0.9 |
| Asian or Pacific Islander | 6511 | 3884 | 0.6 |
| Hispanic | 27339 | 16852 | 2.6 |

(1) Note: Civilian labor force data by definition exclude 14 and 15 year olds, therefore, demographic and age related unemployment data reflect only those 16 years old and older.

Note: Details may not add to totals due to rounding.

Source: Michigan Employment Security Commission
Bureau of Research and Statistics

ECONOMICALLY DISADVANTAGED
ELIGIBLE POPULATION

1986

SDA MICHIGAN

| TOTAL | AGE GROUP | WHITE | BLACK | AM INDIAN | AS PACIFIC | HISPANIC | TOTAL |
|---|---|---|---|---|---|---|---|
| | 14 - 15 | 27947 | 20625 | 487 | 373 | 1953 | 51385 |
| | 16 - 19 | 72766 | 39744 | 1479 | 482 | 3922 | 118393 |
| | 20 - 21 | 48819 | 18797 | 696 | 391 | 1757 | 70460 |
| | 22 - 44 | 370665 | 160757 | 5480 | 4026 | 14667 | 555595 |
| | 45 - 54 | 55379 | 27470 | 551 | 405 | 2468 | 86273 |
| | 55 - 64 | 66346 | 25418 | 391 | 302 | 1638 | 94095 |
| | 65 + | 90672 | 24704 | 579 | 532 | 934 | 117421 |
| | TOTAL | 732594 | 317515 | 9663 | 6511 | 27339 | 1093622 |

| MALE | AGE GROUP | WHITE | BLACK | AM INDIAN | AS PACIFIC | HISPANIC | TOTAL |
|---|---|---|---|---|---|---|---|
| | 14 - 15 | 13750 | 9663 | 258 | 183 | 946 | 24800 |
| | 16 - 19 | 32432 | 15907 | 539 | 181 | 1990 | 51049 |
| | 20 - 21 | 19577 | 5763 | 215 | 183 | 563 | 26301 |
| | 22 - 44 | 145741 | 55787 | 2081 | 1858 | 5858 | 211325 |
| | 45 - 54 | 22076 | 11027 | 237 | 177 | 1163 | 34680 |
| | 55 - 64 | 23442 | 8636 | 158 | 141 | 793 | 33170 |
| | 65 + | 24181 | 5419 | 180 | 159 | 287 | 30226 |
| | TOTAL | 281199 | 112202 | 3668 | 2882 | 11600 | 411551 |

| FEMALE | AGE GROUP | WHITE | BLACK | AM INDIAN | AS PACIFIC | HISPANIC | TOTAL |
|---|---|---|---|---|---|---|---|
| | 14 - 15 | 14197 | 10962 | 229 | 190 | 1007 | 26585 |
| | 16 - 19 | 40334 | 23837 | 940 | 301 | 1932 | 67344 |
| | 20 - 21 | 29242 | 13034 | 481 | 208 | 1194 | 44159 |
| | 22 - 44 | 224924 | 104970 | 3399 | 2168 | 8809 | 344270 |
| | 45 - 54 | 33303 | 16443 | 314 | 228 | 1305 | 51593 |
| | 55 - 64 | 42904 | 16782 | 233 | 161 | 645 | 60925 |
| | 65 + | 66491 | 19285 | 399 | 373 | 647 | 87195 |
| | TOTAL | 451395 | 205313 | 5995 | 3629 | 15739 | 682071 |

ECONOMICALLY DISADVANTAGED
LABOR FORCE

1986

SDA: MICHIGAN

| TOTAL | AGE GROUP | WHITE | BLACK | AM INDIAN | AS PACIFIC | HISPANIC | TOTAL |
|---|---|---|---|---|---|---|---|
| | 14 - 15 | 0. | 0. | 0. | 0. | 0. | 0. |
| | 16 - 19 | 46449. | 15642. | 721. | 205. | 2298. | 65315. |
| | 20 - 21 | 37950. | 11944. | 394. | 187. | 1193. | 51668. |
| | 22 - 44 | 295426. | 115787. | 3834. | 2645. | 10745. | 428437. |
| | 45 - 54 | 40093. | 18308. | 399. | 298. | 1688. | 60786. |
| | 55 - 64 | 29464. | 8310. | 123. | 156. | 707. | 38760. |
| | 65 + | 7023. | 1432. | 31. | 42. | 76. | 8604. |
| | TOTAL | 456405. | 171423. | 5502. | 3533. | 16707. | 653570. |

| MALE | AGE GROUP | WHITE | BLACK | AM INDIAN | AS PACIFIC | HISPANIC | TOTAL |
|---|---|---|---|---|---|---|---|
| | 14 - 15 | 0. | 0. | 0. | 0. | 0. | 0. |
| | 16 - 19 | 21457. | 6523. | 307. | 70. | 1102. | 29459. |
| | 20 - 21 | 15785. | 4297. | 166. | 106. | 431. | 20785. |
| | 22 - 44 | 135911. | 45817. | 1689. | 1443. | 5203. | 190063. |
| | 45 - 54 | 19476. | 8377. | 200. | 152. | 947. | 29152. |
| | 55 - 64 | 15007. | 3694. | 70. | 106. | 449. | 19326. |
| | 65 + | 3074. | 305. | 20. | 15. | 39. | 3453. |
| | TOTAL | 210710. | 69013. | 2452. | 1892. | 8171. | 292238. |

| FEMALE | AGE GROUP | WHITE | BLACK | AM INDIAN | AS PACIFIC | HISPANIC | TOTAL |
|---|---|---|---|---|---|---|---|
| | 14 - 15 | 0. | 0. | 0. | 0. | 0. | 0. |
| | 16 - 19 | 24992. | 9119. | 414. | 135. | 1196. | 35856. |
| | 20 - 21 | 22165. | 7647. | 228. | 81. | 762. | 30883. |
| | 22 - 44 | 159515. | 69970. | 2145. | 1202. | 5542. | 238374. |
| | 45 - 54 | 20617. | 9931. | 199. | 146. | 741. | 31634. |
| | 55 - 64 | 14457. | 4616. | 53. | 50. | 258. | 19434. |
| | 65 + | 3949. | 1127. | 11. | 27. | 37. | 5151. |
| | TOTAL | 245695. | 102410. | 3050. | 1641. | 8536. | 361332. |

SECTION 2

JTPA
TEN PERCENT
TARGET POPULATION GROUPS

## TABLE V.D

## HANDICAPPED POPULATION

## MICHIGAN*

| | TOTAL | IN LABOR FORCE | | NOT IN LABOR FORCE ABLE TO WORK | |
|---|---|---|---|---|---|
| | | TOTAL | ECONOMICALLY DISADVANTAGED | TOTAL | ECONOMICALLY DISADVANTAGED |
| Total 16+ | 878194 | 232983 | 54536 | 645074 | 300012 |
| Male | 411381 | 154101 | 28567 | 257210 | 82137 |
| Female | 466813 | 78882 | 25969 | 387864 | 217875 |
| 16-19 | 20950 | 7846 | 4990 | 13085 | 11821 |
| 20-21 | 14608 | 7652 | 2886 | 6945 | 5136 |
| 22-44 | 193897 | 105676 | 28706 | 88186 | 66941 |
| 45-54 | 123319 | 48814 | 8993 | 74480 | 49988 |
| 55-64 | 198665 | 48114 | 6444 | 150524 | 71879 |
| 65+ | 326755 | 14881 | 2517 | 311854 | 94247 |
| White | 719846 | 193444 | 41625 | 526295 | 224057 |
| Black | 140474 | 33786 | 11009 | 106674 | 68101 |
| Am Indian | 5022 | 1625 | 669 | 3389 | 2122 |
| Asian Pacific | 1913 | 519 | 59 | 1394 | 779 |
| Hispanic | 10939 | 3609 | 1174 | 7322 | 4953 |

*Source: 1980 Census

TABLE V.E

HIGH SCHOOL DROPOUTS

MICHIGAN*

| | 1980 POPULATION | | HIGH SCHOOL DROPOUTS | |
|---|---|---|---|---|
| | TOTAL | ECONOMICALLY DISADVANTAGED | TOTAL | ECONOMICALLY DISADVANTAGED |
| Total 16+ | 6731411 | 1029464 | 1804990 | 435905 |
| Male | 3215305 | 366550 | 870381 | 145858 |
| Female | 3516106 | 662914 | 934609 | 290047 |
| 16-21 | 1071888 | 243413 | 134057 | 46881 |
| 22-64 | 4804002 | 621255 | 1136986 | 265745 |
| 65+ | 855521 | 164796 | 533947 | 123279 |
| White | 5788873 | 739933 | 1455963 | 294884 |
| Black | 781737 | 251197 | 293237 | 122709 |
| Am. Indian | 28028 | 8106 | 10536 | 3863 |
| Asian Pacific | 37273 | 6524 | 5854 | 1628 |
| Hispanic | 95500 | 23704 | 39400 | 12821 |

*Source: 1980 Census

TABLE V.F

TEENAGE PARENTS
BY SERVICE DELIVERY AREA*

| AREA | TOTAL | ECONOMICALLY DISADVANTAGED |
|---|---|---|
| Barry-Branch-Calhoun | 565 | 316 |
| Berrien-Cass-Van Buren | 780 | 580 |
| Lansing Tri-County | 900 | 500 |
| City of Detroit | 4360 | 2920 |
| Thumb Area | 676 | 299 |
| CAPC | 462 | 230 |
| Region II | 780 | 400 |
| Kalamazoo-St. Joseph | 872 | 402 |
| Kent County | 1220 | 660 |
| Livingston-Washtenaw | 560 | 140 |
| Macomb-St. Clair | 1040 | 400 |
| Saginaw-Midland-Bay | 1218 | 677 |
| Downriver-Monroe | 1207 | 447 |
| Oakland County(Balance) | 703 | 225 |
| Muskegon-Oceana | 560 | 420 |
| Allegan-Ottawa | 454 | 188 |
| Pontiac Area | 670 | 250 |
| Genesee-Shiawassee | 1838 | 1094 |
| Wayne County(Balance) | 1100 | 460 |
| Region 7B | 380 | 160 |
| West Central Michigan | 400 | 260 |
| Northeast Michigan | 360 | 260 |
| Northwest Michigan | 500 | 260 |
| Eastern Upper Peninsula | 194 | 95 |
| Central Upper Peninsula | 558 | 243 |
| Western Upper Peninsula | 188 | 29 |
| State of Michigan | 22545 | 11915 |

*Source: 1980 Census

TABLE V.G

LIMITED ENGLISH PROFICIENCY
BY SERVICE DELIVERY AREA*

| AREA | TOTAL | ECONOMICALLY DISADVANTAGED |
|---|---|---|
| Barry-Branch-Calhoun | 580 | 196 |
| Berrien-Cass-Van Buren | 1180 | 500 |
| Lansing Tri-County | 2320 | 1100 |
| City of Detroit | 13960 | 4740 |
| Thumb Area | 557 | 174 |
| CAPC | 475 | 240 |
| Region II | 960 | 300 |
| Kalamazoo-St. Joseph | 691 | 341 |
| Kent County | 2500 | 800 |
| Livingston-Washtenaw | 1480 | 400 |
| Macomb-St. Clair | 6780 | 1220 |
| Saginaw-Midland-Bay | 1776 | 766 |
| Downriver-Monroe | 2441 | 537 |
| Oakland County(Balance) | 5306 | 1378 |
| Muskegon-Oceana | 300 | 100 |
| Allegan-Ottawa | 999 | 475 |
| Pontiac Area | 1256 | 559 |
| Genesee-Shiawassee | 1509 | 392 |
| Wayne County(Balance) | 7460 | 2020 |
| Region 7B | 380 | 80 |
| West Central Michigan | 260 | 140 |
| Northeast Michigan | 260 | 120 |
| Northwest Michigan | 520 | 140 |
| Eastern Upper Peninsula | 192 | 69 |
| Central Upper Peninsula | 739 | 280 |
| Western Upper Peninsula | 636 | 215 |
| State of Michigan | 55517 | 17282 |

*Source: 1980 Census

TABLE V.H

ALCOHOLICS AND ADDICTS
SUBSTANCE ABUSE ADMISSIONS
- FISCAL YEAR 1985/1986(1)

| AREA | TOTAL ADMISSIONS |
|---|---|
| Michigan | 53281 |
| Barry | 157 |
| Branch | 188 |
| Calhoun | 485 |
| SDA TOTAL | 830 |
| Berrien | 378 |
| Cass | 237 |
| Van Buren | 395 |
| SDA TOTAL | 1010 |
| City of Detroit | 9208 |
| Downriver C.C. | NA |
| Monroe | 483 |
| SDA TOTAL | 483 |
| Genesee | 3594 |
| Shiawassee | 330 |
| SDA TOTAL | 3924 |
| Kent | 2376 |
| Jackson | 491 |
| Hillsdale | 112 |
| Lenawee | 396 |
| SDA TOTAL | 999 |
| Kalamazoo | 1776 |
| St. Joseph | 350 |
| SDA TOTAL | 2126 |
| Clinton | 284 |
| Eaton | 309 |
| Ingham | 1770 |
| SDA TOTAL | 2363 |

TABLE V.H, (Continued)
ALCOHOLICS AND ADDICTS

| AREA | TOTAL ADMISSIONS |
|---|---|
| Livingston | 696 |
| Washtenaw | 1462 |
| SDA TOTAL | 2158 |
| Macomb | 3589 |
| St. Clair | 600 |
| SDA TOTAL | 4189 |
| Muskegon | 854 |
| Oceana | 114 |
| SDA TOTAL | 968 |
| Oakland(2) | 4962 |
| Allegan | 420 |
| Ottawa | 417 |
| SDA TOTAL | 837 |
| Pontiac Area | NA |
| Saginaw | 684 |
| Midland | 243 |
| Bay | 452 |
| SDA TOTAL | 1379 |
| Wayne(3) | 8022 |
| Arenac | 90 |
| Clare | 184 |
| Gladwin | 91 |
| Iosco | 68 |
| Ogemaw | 41 |
| Roscommon | 88 |
| SDA TOTAL | 562 |
| Huron | 126 |
| Lapeer | 365 |
| Sanilac | 119 |
| Tuscola | 200 |
| SDA TOTAL | 810 |

**TABLE V.H, (Continued)**
**ALCOHOLICS AND ADDICTS**

| AREA | TOTAL ADMISSIONS |
|---|---|
| Gratiot | 197 |
| Ionia | 140 |
| Isabella | 191 |
| Montcalm | 125 |
| SDA TOTAL | 653 |
| | |
| Alcona | 40 |
| Alpena | 153 |
| Cheboygan | 89 |
| Crawford | 33 |
| Montmorency | 41 |
| Oscoda | 16 |
| Otsego | 69 |
| Presque Isle | 70 |
| SDA TOTAL | 511 |
| | |
| Antrim | 104 |
| Benzie | 43 |
| Charlevoix | 201 |
| Emmet | 148 |
| Grand Traverse | 356 |
| Kalkaska | 69 |
| Leelanau | 56 |
| Manistee | 122 |
| Missaukee | 31 |
| Wexford | 188 |
| SDA TOTAL | 1318 |
| | |
| Lake | 32 |
| Mason | 125 |
| Mecosta | 106 |
| Newaygo | 268 |
| Osceola | 53 |
| SDA TOTAL | 584 |
| | |
| Alger | 88 |
| Delta | 250 |
| Dickinson | 165 |
| Marquette | 961 |
| Menominee | 111 |
| Schoolcraft | 103 |
| SDA TOTAL | 1678 |

TABLE V.H, (Continued)
ALCOHOLICS AND ADDICTS

| AREA | TOTAL ADMISSIONS |
|---|---|
| Chippewa | 320 |
| Luce | 122 |
| Mackinac | 129 |
| SDA TOTAL | 571 |
| Baraga | 170 |
| Gogebic | 131 |
| Houghton | 282 |
| Iron | 143 |
| Keweenaw | 13 |
| Ontonagon | 21 |
| SDA TOTAL | 760 |

(1)Source: Michigan Department of Public Health

(2)Estimates for county only, not SDA

(3)Does not include City of Detroit

TABLE V.I

OFFENDERS
BY SERVICE DELIVERY AREA(1)
AUGUST 1988

| AREA | TOTAL | PAROLEES | CORRECTION CENTER |
|---|---|---|---|
| Barry-Branch-Calhoun | 658 | 131 | 527 |
| Berrien-Cass-Van Buren | 950 | 249 | 701 |
| Lansing Tri-County | 1010 | 181 | 829 |
| City of Detroit | 10540 | 2230 | 8310 |
| Thumb Area | 263 | 44 | 219 |
| CAPC | 605 | 94 | 511 |
| Region II | 1850 | 465 | 1385 |
| Kalamazoo-St. Joseph | 1034 | 186 | 848 |
| Kent County | 1919 | 437 | 1482 |
| Livingston-Washtenaw | 1491 | 311 | 1180 |
| Macomb-St. Clair | 1198 | 279 | 919 |
| Saginaw-Midland-Bay | 1327 | 226 | 1101 |
| Downriver-Monroe((2)) | 289 | 79 | 210 |
| Oakland County((2)) | 3713 | 904 | 2809 |
| Muskegon-Oceana | 1192 | 298 | 894 |
| Allegan-Ottawa | 398 | 86 | 312 |
| Pontiac Area | NA | NA | NA |
| Genesee-Shiawassee | 2372 | 443 | 1929 |
| Wayne County((2)) | 1626 | 475 | 1151 |
| Region 7B | 165 | 41 | 124 |
| West Central Michigan | 256 | 61 | 195 |
| Northeast Michigan | 187 | 44 | 143 |
| Northwest Michigan | 419 | 95 | 324 |
| Eastern Upper Peninsula | 126 | 20 | 106 |
| Central Upper Peninsula | 332 | 74 | 258 |
| Western Upper Peninsula | 82 | 21 | 61 |
| State of Michigan | 34002 | 7474 | 26528 |

(1)Michigan Department of Corrections.
Data does not reflect total inmate population.

(2)Estimates for county only, not consortium.

**TABLE V.J**

**VETERANS**
**BY SERVICE DELIVERY AREA·**

| | VETERAN POPULATION | | VETERAN LABOR FORCE | |
|---|---|---|---|---|
| | TOTAL | ECONOMICALLY DISADVANTAGED | TOTAL | ECONOMICALLY DISADVANTAGED |
| Barry-Branch-Calhoun | 28639 | 2444 | 23113 | 1482 |
| Berrien-Cass-Van Buren | 33820 | 2840 | 28140 | 1660 |
| Lansing Tri-County | 46120 | 2740 | 39740 | 1700 |
| City of Detroit | 126740 | 18420 | 92960 | 8580 |
| Thumb Area | 22058 | 2140 | 18064 | 1344 |
| CAPC | 21481 | 1760 | 17755 | 1031 |
| Region II | 33960 | 2460 | 28580 | 1420 |
| Kalamazoo-St. Joseph | 31221 | 1846 | 26909 | 1171 |
| Kent County | 52100 | 3280 | 43420 | 1480 |
| Livingston-Washtenaw | 39760 | 2160 | 34800 | 1160 |
| Macomb-St. Clair | 108160 | 5300 | 94040 | 3020 |
| Saginaw-Midland-Bay | 48239 | 3998 | 39459 | 2253 |
| Downriver-Monroe | 64996 | 3738 | 54820 | 1867 |
| Oakland County(Balance) | 103348 | 3444 | 91159 | 2170 |
| Muskegon-Oceana | 23340 | 2080 | 19000 | 1200 |
| Allegan-Ottawa | 26416 | 1639 | 22568 | 919 |
| Pontiac Area | 27339 | 2028 | 23354 | 1212 |
| Genesee-Shiawassee | 64023 | 4673 | 52255 | 2573 |
| Wayne County(Balance) | 100360 | 4400 | 85640 | 2380 |
| Region 7B | 17300 | 2060 | 11340 | 1100 |
| West Central Michigan | 15580 | 1900 | 11360 | 940 |
| Northeast Michigan | 15320 | 1920 | 11160 | 1080 |
| Northwest Michigan | 26240 | 2940 | 19760 | 1560 |
| Eastern Upper Peninsula | 6289 | 682 | 4845 | 424 |
| Central Upper Peninsula | 27172 | 2862 | 21265 | 1672 |
| Western Upper Peninsula | 12153 | 1468 | 8053 | 640 |
| State of Michigan | 1122174 | 85222 | 923559 | 46038 |

·Source: 1980 Census

TABLE V.K

DISPLACED HOMEMAKERS
BY SERVICE DELIVERY AREA*

| AREA | TOTAL | ECONOMICALLY DISADVANTAGED |
|---|---|---|
| Barry-Branch-Calhoun | 1480 | 996 |
| Berrien-Cass-Van Buren | 2220 | 1680 |
| Lansing Tri-County | 2200 | 1460 |
| City of Detroit | 29560 | 23420 |
| Thumb Area | 1182 | 853 |
| CAPC | 787 | 533 |
| Region II | 1920 | 1040 |
| Kalamazoo-St. Joseph | 1054 | 739 |
| Kent County | 2520 | 1560 |
| Livingston-Washtenaw | 1220 | 540 |
| Macomb-St. Clair | 4860 | 2400 |
| Saginaw-Midland-Bay | 3258 | 2290 |
| Downriver-Monroe | 3562 | 1921 |
| Oakland County(Balance) | 3481 | 1509 |
| Muskegon-Oceana | 1440 | 880 |
| Allegan-Ottawa | 778 | 541 |
| Pontiac Area | 1812 | 1109 |
| Genesee-Shiawassee | 5331 | 3752 |
| Wayne County(Balance) | 6080 | 3320 |
| Region 7B | 960 | 560 |
| West Central Michigan | 840 | 480 |
| Northeast Michigan | 720 | 480 |
| Northwest Michigan | 1200 | 700 |
| Eastern Upper Peninsula | 342 | 219 |
| Central Upper Peninsula | 1157 | 707 |
| Western Upper Peninsula | 798 | 464 |
| State of Michigan | 80762 | 54153 |

*Source: 1980 Census

SECTION B

JTPA
SPECIAL
TABLES

TABLE V.L

RATIO OF CIVILIAN GOVERNMENT
TO WAGE AND SALARY EMPLOYMENT
BY SERVICE DELIVERY AREA

| AREA | TOTAL | PRIVATE | GOVERNMENT | PERCENT |
|---|---|---|---|---|
| Barry-Branch-Calhoun | 77875 | 60925 | 16950 | 22 |
| Berrien-Cass-Van Buren | 88850 | 74100 | 14750 | 17 |
| Lansing Tri-County | 202200 | 136100 | 66100 | 33 |
| City of Detroit | NA | NA | NA | NA |
| Thumb Area | 47475 | 34550 | 12925 | 27 |
| CAPC | 58900 | 42700 | 16200 | 28 |
| Region II | 92400 | 75475 | 16925 | 18 |
| Kalamazoo-St. Joseph | 124350 | 104500 | 19850 | 16 |
| Kent County | 246500 | 224275 | 22225 | 9 |
| Livingston-Washtenaw | 185300 | 132525 | 52775 | 28 |
| Macomb-St. Clair | 304300 | 258725 | 45575 | 15 |
| Saginaw-Midland-Bay | 152800 | 131700 | 21100 | 14 |
| Downriver-Monroe | 29300 | 23625 | 5675 | 19 |
| Oakland County(1) | 548900 | 502225 | 46675 | 9 |
| Muskegon-Oceana | 60300 | 50075 | 10225 | 17 |
| Allegan-Ottawa | 91375 | 78575 | 12800 | 14 |
| Pontiac Area | NA | NA | NA | NA |
| Genesee-Shiawassee | 189350 | 160400 | 28950 | 15 |
| Wayne County(1) | 937325 | 804300 | 133025 | 14 |
| Region 7B | 29650 | 21050 | 8600 | 29 |
| West Central Michigan | 31975 | 21250 | 10725 | 34 |
| Northeast Michigan | 33525 | 25875 | 7650 | 23 |
| Northwest Michigan | 81925 | 67450 | 14475 | 18 |
| Eastern Upper Peninsula | 14750 | 9175 | 5575 | 38 |
| Central Upper Peninsula | 59875 | 44225 | 15650 | 26 |
| Western Upper Peninsula | 25500 | 16725 | 8775 | 34 |
| State of Michigan(2) | 3713000 | 3099000 | 614000 | 17 |

(1) Estimates for county only, not consortium.

(2) Sum of areas is less than Michigan total primarily due to the exclusion of Monroe data.

NA: Not Applicable

TABLE V.M

RATIO OF PRIVATE EMPLOYMENT TO POPULATION
BY SERVICE DELIVERY AREA

| AREA | PERCENT |
|---|---|
| United States | 35 |
| State of Michigan(1) | 34 |
| Service Delivery Areas | |
| Barry-Branch-Calhoun | 27 |
| Berrien-Cass-Van Buren | 26 |
| Lansing Tri-County | 32 |
| City of Detroit(2) | NA |
| Thumb Area | 17 |
| CAPC | 21 |
| Region II | 39 |
| Kalamazoo-St. Joseph | 38 |
| Kent County | 47 |
| Livingston-Washtenaw | 35 |
| Macomb-St. Clair | 30 |
| Saginaw-Midland-Bay | 33 |
| Downriver-Monroe(2) | 18 |
| Oakland County | 48 |
| Muskegon-Oceana | 28 |
| Allegan-Ottawa | 30 |
| Pontiac Area(2) | NA |
| Genesee-Shiawassee | 32 |
| Wayne County | 37 |
| Region 7B | 16 |
| West Central Michigan | 16 |
| Northeast Michigan | 22 |
| Northwest Michigan | 30 |
| Eastern Upper Peninsula | 20 |
| Central Upper Peninsula | 25 |
| Western Upper Peninsula | 19 |

(1) Sum of areas is less than Michigan total primarily due to the exclusion of Monroe data.

(2) Estimates for county only, not consortium.

NA: Not Applicable

TABLE V.N

WELFARE REGISTRANTS

MICHIGAN

SEPTEMBER 1988

| | Registrants |
|---|---|
| Total | 319219 |
| Male | 93588 |
| Female | 225631 |
| 14-15 | 5 |
| 16-19 | 42156 |
| 20-21 | 19870 |
| 22-44 | 216296 |
| 45-54 | 26940 |
| 55-64 | 13136 |
| 65+ | 816 |
| White | 150250 |
| Black | 155996 |
| American Indian | 1464 |
| Other | 3625 |
| Hispanic | 7884 |

Source: Michigan Department of Social Services, AFDC and GA Registrants (includes students and elderly)

## VI. TABLE DESCRIPTIONS

Following is a discussion of basic data elements presented in this report. The data elements are divided into several major groups: 1. general planning information which covers data on industry, occupation and labor force; 2. the eligible population which covers the economically disadvantaged; 3. those target groups covered by the Title II "ten percent provision"; 4. special JTPA tables which cover data specifically required in the legislation. Those tables based on census data were generated from Summary Tape File 4 (STF-4) micro files. Following each data element is a discussion of issues involved, particularly definitions and data availability.

### General Planning Information Tables

#### Civilian Labor Force

Civilian labor force estimates for PY 1989 are available for the state, labor market areas and service delivery areas. Except for the state, information is available for mutually exclusive categories by sex, age and race.

Total labor force, employment and unemployment forecasts were based upon area population and industry employment trends. Distributions by age, race, sex and geographic detail were derived using 1980 census information.

#### Private Industry Employment Analysis

This information is based on the ES-202 listing of all employers covered by the Michigan Employment Security Act. This listing covers over 90 percent of all employers doing business in Michigan. The major groups which are wholly or partially excluded are railroad employees, commission sales workers, unpaid family workers and government.

Industry employment figures are provided for the total SDA. In some instances, information for counties within a multi-county SDA may be available upon request. Since this data is not available below the county level, sub-county SDA's are provided with their respective county level information. Average employment levels are presented by two digit Standard Industrial Classification Codes for the latest quarter available. The absolute change in employment over the year is also shown. Data for some industries have been excluded to prevent disclosure of confidential information. Since this employment data represents the most current count of jobs by place of work at the county level, it is useful in analyzing local area employment structure and trends.

## Title II Eligible Population Tables

### JTPA Title II Eligible Population

This table contains estimates of the economically disadvantaged population and labor force in 1986. Further detail, cross-tabulated by age, race and sex is also provided. The data were developed by linking forward the 1980 Census information using the March 1987 Current Population Survey for Michigan. This table provides a profile of the disadvantaged adjusted by age/race/sex for potential labor force participation. That is, the last column in the table depicts the disadvantaged assuming that they were to participate in the labor force to the same extent as the general population. This is an important planning guide since it more closely reflects the disadvantaged who are likely to be active in the job market and, therefore, to avail themselves of JTPA services. This table provides demographic detail for each service delivery area in total. County breakouts will be available only as percent distributions of SDA totals.

### Handicapped

A handicapped individual is defined as an individual who has a physical or mental disability which for such individual constitutes or results in a substantial handicap to employment. The information in this table is derived from 1980 Census data. The table presents demographic characteristics on the total handicapped population. Additional information is provided for both total and economically disadvantaged handicapped individuals, in the labor force and not in the labor force but able to work. Census information for the handicapped reflect public transportation disability and is only available for those labor force attached individuals 16 years and older. Persons are identified as having a public transportation disability if they had a health condition which had lasted six months or more and which made it difficult or impossible for them to use buses, trains, subways or other forms of public transportation. Information in the table is only available for the total SDA.

### School Dropouts

In addition to the ten percent provision, services to school dropouts are also mandated under Section 203(b),3 as an "equitable service" item and under Section 205(b),1 as a priority item. According to JTPA legislation a school dropout is an individual who is: 1) not attending any school and is not subject to a compulsory attendance law, and 2) who has not received a secondary school diploma or a certificate from a program of equivalency for such a diploma.

The information in this table is derived from 1980 Census data, and provides demographic characteristics for persons 16 years and older in the general population as well as the school dropout population in 1980. In addition, for both categories information is provided on those who are economically disadvantaged. Information in the table is only available for the total SDA.

### Welfare Registrants

Information in this table may be useful for additional program planning needs. The table is based on information from the Michigan Department of Social Services and represents as of September 1988 an actual count of individuals receiving financial support from the Aid to Families with Dependent Children and General Assistance programs. The information is provided by sex, race and age for each service delivery area on welfare registrants. Registrants are recipients who meet the worker requirement and must participate in training as well as work assignment. Information in the table is only available for the total SDA.

## Title II - Ten Percent Provision Target Groups

### Teenage Parents

The information in this table is based on 1980 Census data. Although teenage parents may be defined as teenagers aged 14-19 with dependent children, census data is only available for 15-19 year olds with dependent children. This table reflects the total teenage parent population as well as those economically disadvantaged for each service delivery area.

### Limited English Language Proficiency

The information in this table is based on 1980 Census data on ability to speak English. This information is derived from responses to question 13c in the census where persons who reported they spoke a language other than English where asked to characterize their ability to speak English. These responses are extremely subjective since they are based on the respondent's own perception.

Information is provided for each SDA on total persons as well as economically disadvantaged persons in this target group.

### Alcoholics and Addicts

This table reflects data on admissions to substance abuse treatment programs and is generated by the Michigan Department of Public Health. Since information was only available at the county level, data for city level service delivery areas is not provided.

### Offenders

The term "offender" means any adult or juvenile who is or has been subject to any stage of the criminal justice process for whom services under JTPA may be beneficial or who requires assistance in overcoming artificial barriers to employment resulting from a record of arrest or conviction. This table presents actual count data from the Michigan Department of Corrections. The table reflects parolees and residents of correction centers as of August 1988 by county from which sentenced. This information does not include offenders in state prisons. This information does not include offenders in local jails, juvenile courts

or the federal facility in Milan. Since information was only available at the county level, data for city level service delivery areas are not provided.

### Veteran Population and Labor Force

The information in this table is based on 1980 Census data. The term "veteran" as defined by JTPA is an individual who served in the active military, naval, or air service, and who was discharged or released there from under conditions other than dishonorable.

According to 1980 Census data, more than one-third of all males 16 years and older are veterans. Since, a population estimate of all veterans will significantly overstate service needs, additional information is provided reflecting labor force attachment as well as those veterans in the population and labor force who are economically disadvantaged.

### Displaced Homemakers

The following statement represents an updated definition for displaced homemakers consistent with legislation and data availability. A displaced homemaker is an individual who is:

1. 35-62 years of age
2. divorced, separated or widowed
3. currently not employed
4. has not been employed within the last five years

These characteristics are cross-tabulated from 1980 Census data to arrive at a more current estimate of "displaced homemakers" in both definitional and data terms. Information in the table is only available for the total SDA.

### Older Workers/Older Individuals

Older workers are defined as those 55 years of age and over. Services are mandated in two sections of JTPA; Section 124 and the ten percent provision of Title II. Section 124 refers to disadvantaged older individuals, and is presented as a subset of the economically disadvantaged information in Table I. The ten percent provision refers to all older workers, and is a subset of the civilian labor force data in Table 3.

## Special JTPA Tables

### Ratio of Civilian Government to Wage and Salary Employment

This ratio is used to regulate the distribution of participants in on-the-job-training (OJT) between private and government employment. The information is derived from the Bureau of Labor Statistic's 790

Employment Survey data base generated by MESC-Research and Statistics. The data base is a monthly employment survey of establishments by place of work and does not include agricultural or self-employment. The wage and salary employment estimates, based on place of work are used rather than total employment estimates from the census which are based on place of residence. The place of work data was considered more consistent with the legislation in terms of current information and the analysis of area industry structure.

For most SDA's, the data in the table is the percent of government to total wage and salary employment computed from MESC labor market area (LMA) wage and salary employment data. For SDA's which do not conform to LMA boundaries, the LMA data were disaggregated using county employment estimates based on employer reports under the unemployment insurance system (ES-202 report). Annual average 1987 wage and salary data were used for SDA's conforming to LMA boundaries. Annual average 1987 ES-202 data were used to disaggregate county employment for SDA's not conforming to labor market boundaries. Employment estimates by place of work are only available for SDA's comprising whole counties. It is recommended that sub-county SDA's use the information provided for their respective county.

Ratio of Private Employment to Population

This ratio is one of several criteria used to justify administrative costs in excess of the 30 percent limitation [Section 108, part 2, b(ii)]. The employment information is derived from the establishment survey data base described in the previous table. The population data is based on the 1980 Census of Population 16+ years of age.

## VII. APPENDICES

A. Glossary . . . . . .

B. Unemployment Insurance Claimants . . . . . .

C. Per Capita Personal Income by County . . . . . .

D. 1995 Detailed Occupational Projections . . . . . .

# APPENDIX A

## GLOSSARY

## GLOSSARY

LABOR MARKET AREAS consist of a central community and surrounding territory in which there is a concentration of economic activity or labor demand and in which workers can generally change jobs without changing their residence. Major labor market areas (MSA's) have a central city (or adjoining cities) with a population of 50,000 or more. Small labor market areas must have a central community that has a population nucleus of 5,000 or more.

METROPOLITAN STATISTICAL AREAS (MSA'S) are designated and defined by the U.S. Department of Commerce so that local economic and social statistics collected by many government and private organizations may be presented on a common geographic basis. Areas qualifying as metropolitan statistical areas have either a city with a population of at least 50,000 or a Bureau of the Census urbanized area of at least 50,000 and a total metropolitan statistical area population of at least 100,000.

CURRENT POPULATION SURVEY is conducted monthly in approximately 3,000 Michigan households by the U.S. Bureau of the Census to derive civilian labor force, total employment and unemployment estimates for the state. These estimates are prepared directly by BLS and released at the same time as the national figures each month. Labor force estimates for subareas of Michigan are compiled by the Bureau of Research and Statistics of MESC based on standard BLS procedures. These independently derived figures for labor market areas are then adjusted for additivity to the Statewide totals.

CIVILIAN LABOR FORCE (BY PLACE OF RESIDENCE) is the summation of the number of area residents who are estimated to be employed and the number of area residents estimated to be unemployed.

EMPLOYMENT, TOTAL includes an unduplicated estimate of area residents who earned wages during the week including the 12th of each month. This estimate includes agricultural employees, self-employed and unpaid family workers, domestics and strikers, as well as residents who were employed in wage and salary jobs within the labor market area or in another labor market area.

UNEMPLOYMENT, TOTAL is an unduplicated estimate of area residents who did not earn any wages during the survey week including the 12th of the month, and who were able, available, and actively seeking work during the thirty-day period preceding the survey week.

UNEMPLOYMENT RATE is the total number of unemployed in the labor market area divided by the civilian labor force in the area.

WAGE AND SALARY EMPLOYMENT (BY PLACE OF WORK) is an estimate of the number of individual jobs in the area based on a survey of employers during the survey week. These estimates are available by industry and include nonresidents who commute into the labor market area for work, as well as individuals who have more than one job in the same labor market area.

WORKERS INVOLVED IN LABOR DISPUTES is an estimate of the number of jobs that are affected by a labor-management dispute during the entire survey week. Workers included in this category are not considered unemployed since they have a job attachment.

BENCHMARK (CURRENT EMPLOYMENT STATISTICS) indicates the most recent time period during which the industry employment estimates, which are based on a monthly sample of local employers, were compared with and adjusted to the total count of area jobs as reported under the Michigan Employment Security Act. Also, estimates of noncovered employment are included.

BENCHMARK (CURRENT POPULATION SURVEY) indicates the most recent time period during which the labor force, employment and unemployment estimates, by place of residence, were compared with and adjusted to the national household survey conducted in Michigan by the U.S. Bureau of Labor Statistics.

HANDICAPPED The term "handicapped individual" means any individual who has a physical or mental disability which for such individual constitutes or results in a substantial handicap to employment.

OFFENDER The term "offender" means any adult or juvenile who is or has been subject to any stage of the criminal justice process and for whom services under employment and training legislation may be beneficial or who requires assistance in overcoming artificial barriers to employment resulting from a record of arrest or conviction.

ECONOMICALLY DISADVANTAGED PERSON The term "economically disadvantaged" means an individual who meets one of the following criteria:

A. Receives, or is a member of a family which receives cash welfare payments under a federal,state or local welfare program;

B. Has, or is a member of a family which has received a total income for the six (6) months prior to application which is not in excess of the most recently established poverty levels determined in accordance with criteria established by the Office of Management and Budget (OMB),or is 70% of the lower standard of living;

C. Receives food stamps pursuant to the Food Stamp Act of 1977;

D. Is a foster child, on behalf of whom state or local government payments are made;or

E. Is an adult, handicapped individual whose own income meets the requirements of (A) or (B) above, but who is a member of a family whose income does not meet such requirements.

POVERTY LEVEL INCOME is the maximum annual income which can be received by an individual or a family and still be considered economically disadvantaged. The maximum income level varies according to size of family. The poverty guidelines continue to be updated periodically to

reflect consumer price changes as measured by the Consumer Price Index. The current poverty guidelines effective February 12, 1988 are:

| Family Size | Nationwide |
|---|---|
| 1 | $5,770 |
| 2 | 7,730 |
| 3 | 9,690 |
| 4 | 11,650 |
| 5 | 13,610 |
| 6 | 15,570 |
| 7 | 17,530 |
| 8 | 19,490 |

For families in excess of eight members, add $1,960 for each additional member.

SEVENTY PERCENT LOWER LIVING STANDARD INCOME LEVELS. Are effective as of May 16, 1988. Eligibility to participate in JTPA programs funded under Title II-A and Title II-b (Summer Youth Employment Program), require income determination of eligibility on the higher of either 70% of the lower living standard income level, or the OMB poverty guidelines.

| Family Size | Detroit MSA | Metropolitan (except for the Detroit MSA) | Non-Metro |
|---|---|---|---|
| 1 | $4,560 | $4,740 | $4,540 |
| 2 | 7,480 | 7,770 | 7,430 |
| 3 | 10,260 | 10,670 | 10,210 |
| 4 | 12,670 | 13,170 | 12,600 |
| 5 | 14,950 | 15,540 | 14,870 |
| 6 | 17,480 | 18,170 | 17,390 |
| Each Over Six | 2,530 | 2,630 | 2,520 |

Note: Metropolitan area income standards are applied to applicants residing within a Metropolitan Statistical Area (MSA). Non-Metropolitan area income standards are applied to applicants outside an MSA. Metropolitan Statistical Areas are listed in the table on the following page.

## METROPOLITAN STATISTICAL AREAS IN MICHIGAN

| City | Counties |
|---|---|
| Ann Arbor | Washtenaw |
| Detroit | Lapeer-Livingston-Macomb<br>Monroe-Oakland-St.Clair-Wayne |
| Battle Creek | Calhoun |
| Benton Harbor | Berrien |
| Flint | Genesee |
| Grand Rapids | Kent-Ottawa |
| Jackson | Jackson |
| Kalamazoo | Kalamazoo |
| Lansing/East Lansing | Clinton-Eaton-Ingham |
| Muskegon | Muskegon |
| Saginaw-Bay City-Midland | Saginaw-Bay-Midland |

APPENDIX B

UI CLAIMANTS BY SDA

This information is prepared by the Michigan Employment Security Commission from the Unemployment Insurance Data base. This information represents U.I. claims for regular benefits for the survey week which includes the 12th of the month during September 1988. The claimant data has been geographically distributed by Service Delivery Area.

UNEMPLOYMENT INSURANCE CLAIMANTS BY SERVICE DELIVERY AREA
SEPTEMBER 1988*

| AREA | REGULAR UNEMPLOYMENT INSURANCE |
|---|---|
| Barry-Branch-Calhoun | 1486 |
| Berrien-Cass-Van Buren | 2196 |
| Lansing Tri-County | 3026 |
| Thumb Area | 2037 |
| CAPC | 1474 |
| Region II | 2788 |
| Kalamazoo-St. Joseph | 2077 |
| Kent County | 3015 |
| Livingston-Washtenaw | 1765 |
| Macomb-St. Clair | 7964 |
| Saginaw-Midland-Bay | 2744 |
| Monroe County | 942 |
| Oakland County | 8360 |
| Muskegon-Oceana | 1719 |
| Allegan-Ottawa | 1377 |
| Genesee-Shiawassee | 8146 |
| Wayne County(1) | 20080 |
| City of Detroit | 11761 |
| Region 7B | 837 |
| West Central Michigan | 956 |
| Northeast Michigan | 987 |
| Northwest Michigan | 2153 |
| Eastern Upper Peninsula | 402 |
| Six County Consortium | 994 |
| Western Upper Peninsula | 443 |
| State of Michigan | 77968 |

*Source: Michigan Employment Security Commission
Bureau of Research and Statistics

(1)Wayne County total includes City of Detroit.

APPENDIX C

## PER CAPITA PERSONAL INCOME BY COUNTY

The per capita personal income estimates presented in this publication were produced by the Bureau of Economic Analysis. Personal income and derivative measures have a broad range of application. They are widely used in both the public and private sectors. For state and local governments the estimates are useful inputs in economic resource profiles and in economic models developed for planning purposes.

Per capita personal income of an area is the income received by, or on behalf of all the residents of the area. Personal income is the sum of wage and salary disbursements, other labor income, proprietors' income with inventory valuation and capital consumption adjustments, rental income of persons with capital consumption adjustment, personal dividend income, personal interest income, and transfer payments, less personal contributions for social insurance.

## PER CAPITA PERSONAL INCOME BY COUNTY
(Residency Adjusted)

| Area | 1980 | 1986 |
|---|---|---|
| Michigan | 10165 | 14806 |
| Alcona | 7157 | 10455 |
| Alger | 6212 | 9524 |
| Allegan | 8547 | 12039 |
| Alpena | 8225 | 11382 |
| Antrim | 8311 | 11266 |
| Arenac | 7830 | 10585 |
| Baraga | 7042 | 9817 |
| Barry | 9006 | 12970 |
| Bay | 9516 | 13034 |
| Benzie | 7717 | 11278 |
| Berrien | 8886 | 12773 |
| Branch | 8618 | 11534 |
| Calhoun | 9244 | 12634 |
| Cass | 8516 | 12427 |
| Charlevoix | 8179 | 11465 |
| Cheboygan | 7576 | 10349 |
| Chippewa | 6983 | 9625 |
| Clare | 6813 | 9444 |
| Clinton | 8978 | 12932 |
| Crawford | 6464 | 9709 |
| Delta | 7912 | 11348 |
| Dickinson | 9350 | 12918 |
| Eaton | 9613 | 13672 |
| Emmet | 9048 | 13108 |
| Genesee | 10324 | 15049 |
| Gladwin | 7080 | 9637 |
| Gogebic | 7211 | 10052 |
| Grand Traverse | 9140 | 13854 |
| Gratiot | 8485 | 11908 |
| Hillsdale | 8147 | 11430 |
| Houghton | 6881 | 9837 |
| Huron | 9031 | 12607 |
| Ingham | 9781 | 14431 |
| Ionia | 7866 | 10280 |
| Iosco | 7301 | 10322 |
| Iron | 8026 | 11008 |
| Isabella | 7666 | 11306 |
| Jackson | 9421 | 12666 |
| Kalamazoo | 9871 | 14425 |
| Kalkaska | 6715 | 9224 |
| Kent | 9914 | 14578 |
| Keweenaw | 6692 | 8900 |

(Continued)
PER CAPITA PERSONAL INCOME BY COUNTY

| Area | 1980 | 1986 |
|---|---|---|
| Lake | 6062 | 8268 |
| Lapeer | 9143 | 13184 |
| Leelanau | 9138 | 13618 |
| Lenawee | 9427 | 13210 |
| Livingston | 10383 | 15561 |
| Luce | 8218 | 13279 |
| Mackinac | 7308 | 10741 |
| Macomb | 10904 | 16966 |
| Manistee | 7905 | 10952 |
| Marquette | 7936 | 10887 |
| Mason | 7759 | 10626 |
| Mecosta | 6268 | 8930 |
| Menominee | 7614 | 10548 |
| Midland | 10336 | 15504 |
| Missaukee | 6541 | 9132 |
| Monroe | 9412 | 13573 |
| Montcalm | 8348 | 10886 |
| Montmorency | 7075 | 10163 |
| Muskegon | 8708 | 12000 |
| Newaygo | 7481 | 10684 |
| Oakland | 13910 | 21611 |
| Oceana | 7658 | 10578 |
| Ogemaw | 6536 | 9389 |
| Ontonagon | 7516 | 10926 |
| Osceola | 6551 | 9162 |
| Oscoda | 6501 | 9113 |
| Otsego | 8140 | 11790 |
| Ottawa | 9382 | 13828 |
| Presque Isle | 7651 | 9916 |
| Roscommon | 7543 | 10602 |
| Saginaw | 9788 | 13567 |
| St. Clair | 9352 | 13560 |
| St. Joseph | 8604 | 11806 |
| Sanilac | 8735 | 11441 |
| Schoolcraft | 7441 | 10291 |
| Shiawassee | 9133 | 13097 |
| Tuscola | 8858 | 11911 |
| Van Buren | 8017 | 11168 |
| Washtenaw | 11927 | 18505 |
| Wayne | 10367 | 14600 |
| Wexford | 7082 | 10087 |

Source: Bureau of Economic Analysis - April 1988

APPENDIX D

## 1995 DETAILED OCCUPATIONAL PROJECTIONS

The following tables list detailed occupational projections for the period 1985 - 1995. Included are employment levels for both years, net and percentage change in employment and data on annual openings.

State of Michigan
OCCUPATIONAL EMPLOYMENT PROJECTIONS
1985 - 1995
*(For Occupations of 50 Employment or Greater)*

| OCCUPATION NAME | 1985 EMPLOYMENT | 1995 EMPLOYMENT | EMPLOYMENT CHANGE NUMBER | EMPLOYMENT CHANGE RATE | ANNUAL AVERAGE OPENINGS TOTAL | GROWTH | REPLACEMENT |
|---|---|---|---|---|---|---|---|
| **TOTAL, ALL OCCUPATIONS** | **3,899,500** | **4,374,200** | **374,675** | **9.37** | **67,420** | **37,470** | **29,950** |
| **Managerial & mgt. rel. occupations** | **345,350** | **398,750** | **53,400** | **15.48** | **17,850** | **5,340** | **12,510** |
| **Managerial & admin. occupations** | **240,600** | **275,600** | **34,975** | **14.54** | **12,480** | **3,500** | **8,980** |
| Educational Administrators | 9,700 | 10,450 | 725 | 7.42 | 370 | 70 | 300 |
| Food serv. & lodging manager | 13,700 | 15,750 | 2,050 | 14.86 | 740 | 200 | 540 |
| Postmasters & mail superint. | 1,350 | 1,450 | 100 | 7.38 | 110 | 10 | 100 |
| Pub. adm. exec., legist., admin. | 2,200 | 2,400 | 225 | 9.92 | 140 | 20 | 120 |
| AO managers & administrators | 213,650 | 245,550 | 31,900 | 14.93 | 11,110 | 3,190 | 7,920 |
| **Management support occupations** | **104,700** | **123,150** | **18,425** | **17.59** | **5,370** | **1,840** | **3,520** |
| Accountants & auditors | 29,100 | 36,350 | 7,225 | 24.85 | 1,620 | 720 | 900 |
| Assessors | 800 | 850 | 75 | 9.98 | 30 | 10 | 30 |
| Claims examiner prop. & cas. ins. | 2,050 | 2,500 | 425 | 20.19 | 110 | 40 | 70 |
| Compliance & enforcement insp. | 3,650 | 3,850 | 175 | 4.48 | 130 | 20 | 120 |
| Constuction & building inspectors | 1,500 | 1,650 | 150 | 10.58 | 130 | 20 | 110 |
| Cost estimators | 6,700 | 7,450 | 750 | 11.39 | 260 | 80 | 180 |
| Personnel specilists & related | 12,850 | 14,550 | 1,675 | 12.95 | 510 | 170 | 340 |
| Claims takers, unemp. benefits | 450 | 400 | -25 | -10.42 | 10 | 0 | 10 |
| Emp. interviewers, emp. serv. | 1,700 | 2,350 | 625 | 35.93 | 110 | 60 | 50 |
| Other personnel specialists | 10,050 | 11,050 | 1,000 | 10.00 | 360 | 100 | 260 |
| Special agents, insurance | 700 | 750 | 100 | 13.12 | 30 | 10 | 20 |
| Purchasing agents & buyers | 12,100 | 13,300 | 1,175 | 9.78 | 550 | 120 | 430 |
| Purch. agents ex. whl/ret/farm | 6,800 | 7,350 | 575 | 8.39 | 270 | 60 | 210 |
| Whlsle. & ret. buyers, ex. farm | 5,300 | 5,950 | 625 | 11.56 | 280 | 60 | 220 |
| Tax exam., coll., & reven. agent | 1,150 | 1,100 | 0 | -2.62 | 30 | 0 | 30 |
| Tax preparers | 1,250 | 1,400 | 150 | 12.14 | 60 | 20 | 50 |
| Underwriters | 2,600 | 2,950 | 375 | 14.35 | 50 | 40 | 20 |
| AO management support worker | 30,950 | 37,200 | 6,250 | 20.23 | 1,880 | 630 | 1,250 |
| **Engineers, architects, & surveyors** | **65,700** | **72,100** | **6,400** | **9.74** | **2,410** | **640** | **1,770** |
| **Engineers** | **60,850** | **66,550** | **5,700** | **9.36** | **2,200** | **570** | **1,630** |
| Aeron. & astron. engineers | 500 | 550 | 25 | 7.55 | 20 | 0 | 10 |
| Chemical engineers | 1,150 | 1,350 | 175 | 15.11 | 50 | 20 | 30 |
| Civil engineers, incl. traffic | 5,050 | 5,900 | 850 | 16.82 | 240 | 80 | 150 |
| Electri. & electro. engineer | 7,250 | 9,100 | 1,825 | 25.00 | 330 | 180 | 150 |
| Industrial engineers, ex. safety | 7,000 | 7,450 | 475 | 6.63 | 210 | 50 | 160 |
| Mechanical engineers | 10,900 | 11,650 | 775 | 7.00 | 360 | 80 | 280 |
| Metallurg. & related engineers | 1,800 | 1,950 | 150 | 7.94 | 80 | 10 | 60 |
| Mining engineers, incl safety | 50 | 50 | 0 | 1.24 | 0 | 0 | 0 |
| Nuclear engineers | 200 | 200 | 0 | 0.00 | 0 | 0 | 0 |
| Petroleum engineers | 200 | 200 | 0 | 1.48 | 0 | 0 | 0 |

State of Michigan
OCCUPATIONAL EMPLOYMENT PROJECTIONS
1985 - 1995
*(For Occupations of 50 Employment or Greater)*

| OCCUPATION NAME | 1985 EMPLOYMENT | 1995 EMPLOYMENT | EMPLOYMENT CHANGE NUMBER | EMPLOYMENT CHANGE RATE | ANNUAL AVERAGE OPENINGS TOTAL | GROWTH | REPLACEMENT |
|---|---|---|---|---|---|---|---|
| Other engineers | 26,800 | 28,250 | 1,450 | 5.40 | 910 | 140 | 770 |
| Safety engineers, except mining | 600 | 650 | 50 | 7.90 | 20 | 0 | 10 |
| All Other engineers | 26,150 | 27,550 | 1,400 | 5.35 | 890 | 140 | 760 |
| **Architects & surveyors** | **4,850** | **5,550** | **700** | **14.58** | **200** | **70** | **130** |
| Architects, including landscape | 2,800 | 3,200 | 425 | 14.99 | 140 | 40 | 100 |
| Surveyors | 2,050 | 2,350 | 300 | 14.02 | 70 | 30 | 40 |
| **Natural, computer, & math scientists** | **24,700** | **30,150** | **5,475** | **22.18** | **930** | **550** | **380** |
| **Computer systems analysts, EDP** | **12,550** | **17,300** | **4,725** | **37.55** | **580** | **470** | **110** |
| **Life scientists** | **4,150** | **4,550** | **400** | **9.49** | **130** | **40** | **90** |
| Agricultural & food scientists | 650 | 700 | 75 | 11.33 | 20 | 10 | 10 |
| Biological scientists | 1,800 | 1,950 | 200 | 10.66 | 50 | 20 | 30 |
| Foresters & conserv. scientists | 600 | 600 | 25 | 3.22 | 20 | 0 | 10 |
| Medical scientists | 350 | 450 | 50 | 14.42 | 20 | 10 | 10 |
| All Other life scientists | 800 | 850 | 50 | 7.73 | 20 | 10 | 20 |
| **Mathematical scientists** | **2,200** | **2,300** | **100** | **5.08** | **70** | **10** | **60** |
| Actuaries | 150 | 250 | 75 | 44.94 | 10 | 10 | 0 |
| Statisticians | 1,900 | 1,900 | 0 | -0.19 | 50 | 0 | 50 |
| Mathematicians | 150 | 200 | 50 | 31.67 | 10 | 0 | 0 |
| **Physical scientists** | **5,750** | **5,950** | **250** | **4.26** | **160** | **20** | **130** |
| Chemists | 3,500 | 3,550 | 75 | 2.22 | 80 | 10 | 70 |
| Geolog., geoph., & oceanograph. | 450 | 500 | 75 | 17.80 | 20 | 10 | 20 |
| Meteorologists | 150 | 150 | 0 | 2.00 | 0 | 0 | 0 |
| Physicists & astronomers | 250 | 200 | 0 | -1.81 | 0 | 0 | 0 |
| All Other physical scientists | 1,400 | 1,500 | 100 | 6.47 | 50 | 10 | 40 |
| **Social scientists** | **5,850** | **6,500** | **675** | **11.73** | **180** | **70** | **90** |
| **Economists** | **800** | **700** | **100** | **16.68** | **20** | **10** | **10** |
| **Psychologists** | **2,850** | **3,300** | **475** | **16.38** | **90** | **50** | **40** |
| **Sociologists** | **150** | **150** | **0** | **0.84** | **0** | **0** | **0** |
| **Urban & regional planners** | **350** | **350** | **25** | **5.31** | **10** | **0** | **0** |
| **All Other social scientists** | **1,900** | **2,000** | **100** | **5.28** | **50** | **10** | **40** |
| **Social, rec., & relig. workers** | **34,050** | **38,850** | **4,800** | **13.50** | **2,030** | **480** | **1,570** |
| **Clergy** | **13,500** | **13,700** | **200** | **1.51** | **940** | **20** | **920** |
| **Directors, relig. activ. & educ.** | **1,600** | **1,600** | **50** | **2.53** | **110** | **0** | **110** |
| **Recreation workers** | **4,050** | **4,750** | **650** | **16.30** | **250** | **70** | **180** |
| **Social workers** | **14,900** | **18,800** | **3,700** | **24.74** | **720** | **370** | **380** |

State of Michigan
OCCUPATIONAL EMPLOYMENT PROJECTIONS
1985 - 1995
*(For Occupations of 50 Employment or Greater)*

| OCCUPATION NAME | 1985 EMPLOYMENT | 1995 EMPLOYMENT | EMPLOYMENT CHANGE NUMBER | EMPLOYMENT CHANGE RATE | ANNUAL AVERAGE OPENINGS TOTAL | ANNUAL AVERAGE OPENINGS GROWTH | ANNUAL AVERAGE OPENINGS REPLACEMENT |
|---|---|---|---|---|---|---|---|
| **Lawyers & judges** | **19,000** | **24,700** | **5,700** | **30.00** | **1,610** | **570** | **1,040** |
| Judges, magis., & other judic. wkrs | 1,050 | 1,200 | 150 | 14.86 | 100 | 20 | 90 |
| Lawyers | 17,950 | 23,500 | 5,550 | 30.89 | 1,510 | 550 | 950 |
| **Teachers, librarians, & counselors** | **184,300** | **198,850** | **14,525** | **7.88** | **8,290** | **1,450** | **6,840** |
| **Teachers, preschool & elementary** | **46,700** | **55,800** | **9,100** | **19.49** | **2,530** | **910** | **1,620** |
| Teachers, preschool & kindergarten | 8,150 | 10,600 | 2,475 | 30.30 | 470 | 250 | 230 |
| Teachers, elementary | 38,550 | 45,200 | 6,625 | 17.21 | 2,060 | 660 | 1,390 |
| **Teachers, secondary school** | **44,400** | **45,150** | **775** | **1.73** | **1,620** | **80** | **1,550** |
| **College & university faculty** | **21,450** | **20,400** | **-1,050** | **-5.00** | **480** | **-100** | **590** |
| **Other teachers & instructors** | **82,850** | **87,600** | **4,775** | **7.59** | **3,190** | **480** | **2,710** |
| Farm & home management advisors | 550 | 500 | -25 | -10.17 | 20 | 0 | 20 |
| Graduate assistants, teaching | 3,500 | 3,250 | -225 | -7.14 | 80 | -20 | 110 |
| Instructors, adult nonvoc. educ. | 5,900 | 7,300 | 1,425 | 24.17 | 420 | 140 | 280 |
| Instructors & coaches, sport | 6,000 | 6,650 | 625 | 10.57 | 330 | 60 | 270 |
| Teachers & instruc., voc. educ | 6,900 | 8,100 | 1,200 | 17.52 | 440 | 120 | 320 |
| All Other teachers & instructors | 40,000 | 41,800 | 1,800 | 4.53 | 1,890 | 180 | 1,710 |
| **Librarians, archivists, curators** | **5,450** | **5,800** | **350** | **6.28** | **330** | **30** | **300** |
| Audio-visual specialists | 350 | 350 | 25 | 5.66 | 20 | 0 | 20 |
| Curators, archiv., museum tech. | 350 | 400 | 25 | 5.92 | 40 | 0 | 40 |
| Librarians, professional | 4,750 | 5,050 | 300 | 6.33 | 270 | 30 | 240 |
| **Counselors** | **3,450** | **4,050** | **625** | **17.99** | **140** | **60** | **80** |
| **Health diagn. & treat. occupations** | **103,050** | **127,500** | **24,425** | **23.69** | **6,010** | **2,440** | **3,570** |
| **Chiropractors** | **950** | **1,050** | **75** | **8.43** | **100** | **10** | **90** |
| **Dentists** | **7,100** | **8,150** | **1,000** | **14.17** | **510** | **100** | **410** |
| **Dietitians & nutritionists** | **1,450** | **1,700** | **250** | **17.64** | **80** | **30** | **50** |
| **Opticians, dispensing & measuring** | **2,200** | **2,700** | **525** | **23.83** | **130** | **50** | **70** |
| **Optometrists** | **1,300** | **1,600** | **325** | **25.02** | **140** | **30** | **110** |
| **Pharmacists** | **6,300** | **6,800** | **450** | **7.28** | **310** | **50** | **260** |
| **Podiatrists** | **1,000** | **1,150** | **175** | **16.93** | **80** | **20** | **50** |
| **Physician assistants** | **2,450** | **2,950** | **500** | **20.80** | **70** | **50** | **20** |
| **Physicians & surgeons** | **18,400** | **20,850** | **2,425** | **13.21** | **1,310** | **240** | **1,060** |
| **Registered nurses** | **52,800** | **69,700** | **16,900** | **32.02** | **2,980** | **1,690** | **1,290** |
| **Therapists** | **7,850** | **9,250** | **1,400** | **17.86** | **220** | **140** | **80** |
| Occupational therapists | 800 | 1,050 | 275 | 32.88 | 40 | 30 | 10 |
| Physical therapists | 1,600 | 2,100 | 475 | 30.23 | 70 | 50 | 30 |
| Recreational therapists | 450 | 550 | 75 | 17.45 | 20 | 10 | 10 |
| Respiratory therapists | 2,300 | 2,700 | 400 | 16.86 | 50 | 40 | 10 |
| Speech pathologists & audiolog. | 1,850 | 2,000 | 125 | 6.23 | 20 | 10 | 10 |

State of Michigan
OCCUPATIONAL EMPLOYMENT PROJECTIONS
1985 - 1995
*(For Occupations of 50 Employment or Greater)*

| OCCUPATION NAME | 1985 EMPLOYMENT | 1995 EMPLOYMENT | EMPLOYMENT CHANGE NUMBER | EMPLOYMENT CHANGE RATE | ANNUAL AVERAGE TOTAL | ANNUAL AVERAGE GROWTH | ANNUAL AVERAGE REPLACEMENT |
|---|---|---|---|---|---|---|---|
| All Other therapists | 800 | 850 | 75 | 8.17 | 20 | 10 | 10 |
| Veterinarians & vet. inspector | 1,250 | 1,600 | 350 | 28.01 | 100 | 40 | 70 |
| Writers, art., enter., & athletes | 44,100 | 51,100 | 7,025 | 15.94 | 2,120 | 700 | 1,420 |
| Artists & commercial artists | 7,200 | 9,100 | 1,900 | 26.46 | 380 | 190 | 190 |
| Athletes, coaches, umps., & rel. | 3,800 | 3,800 | 0 | -0.40 | 50 | 0 | 50 |
| Dancers & choreographers | 50 | 50 | 0 | 19.26 | 0 | 0 | 0 |
| Designers, ex. interior design | 10,350 | 12,200 | 1,800 | 17.47 | 530 | 180 | 350 |
| Merch. displayers & window dresser | 800 | 850 | 75 | 8.69 | 30 | 10 | 30 |
| Musicians | 6,500 | 7,300 | 775 | 11.82 | 380 | 80 | 280 |
| Music dir., singers, & rel. | 1,650 | 1,700 | 75 | 4.40 | 80 | 10 | 70 |
| Musicians, instrumental | 4,900 | 5,550 | 700 | 14.31 | 280 | 70 | 210 |
| Photographers & camera operators | 3,400 | 4,050 | 675 | 20.04 | 210 | 70 | 140 |
| Camera operators, TV & movie | 250 | 350 | 100 | 38.56 | 20 | 10 | 10 |
| Photographers | 3,150 | 3,750 | 575 | 18.65 | 190 | 60 | 130 |
| Prod., direct., actors, & related | 600 | 800 | 200 | 38.40 | 30 | 20 | 10 |
| P.R. specialists & pub. writer | 2,250 | 2,750 | 500 | 22.73 | 130 | 50 | 80 |
| Radio & TV announcers & newscasters | 1,500 | 1,650 | 175 | 12.14 | 40 | 20 | 20 |
| Announcers, radio & TV | 1,300 | 1,450 | 150 | 11.77 | 30 | 20 | 10 |
| Broadcast news analysts | 150 | 200 | 25 | 15.20 | 10 | 0 | 10 |
| Reporters & correspondents | 2,350 | 2,500 | 150 | 6.99 | 90 | 20 | 70 |
| Writers & edit., in. tech. writers | 5,350 | 6,100 | 750 | 13.82 | 280 | 70 | 210 |
| Technician occupations | 151,150 | 177,050 | 25,950 | 17.18 | 5,410 | 2,590 | 2,810 |
| Health technic. & technolog. | 62,850 | 72,050 | 9,225 | 14.68 | 2,090 | 920 | 1,170 |
| Dental hygienists | 4,300 | 5,200 | 925 | 21.85 | 120 | 90 | 20 |
| Dietetic technicians | 1,650 | 2,000 | 325 | 19.68 | 90 | 30 | 60 |
| EKG technic. & technolog. | 700 | 800 | 100 | 16.20 | 20 | 10 | 10 |
| EEG technic. & technolog. | 250 | 300 | 25 | 14.90 | 10 | 0 | 0 |
| Emergency medical technician | 2,100 | 2,550 | 450 | 22.24 | 80 | 50 | 40 |
| Licensed practical nurses | 26,750 | 29,700 | 2,975 | 11.10 | 950 | 300 | 660 |
| Med. & clin. lab tech. & technog. | 9,300 | 9,850 | 575 | 6.13 | 170 | 60 | 120 |
| Med. & clin. lab technicians | 3,400 | 3,550 | 150 | 4.64 | 60 | 20 | 40 |
| Med. & clin. lab technologists | 5,900 | 6,300 | 400 | 7.00 | 120 | 40 | 70 |
| Medical records techn. & technog. | 1,400 | 1,850 | 450 | 31.81 | 70 | 50 | 20 |
| Radiologic techn. & technolog. | 5,150 | 6,050 | 900 | 17.39 | 140 | 90 | 50 |
| Surgical technicians | 1,250 | 1,400 | 175 | 14.67 | 40 | 20 | 20 |

State of Michigan
OCCUPATIONAL EMPLOYMENT PROJECTIONS
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| OCCUPATION NAME | 1985 EMPLOYMENT | 1995 EMPLOYMENT | EMPLOYMENT CHANGE NUMBER | EMPLOYMENT CHANGE RATE | ANNUAL AVERAGE OPENINGS TOTAL | GROWTH | REPLACEMENT |
|---|---|---|---|---|---|---|---|
| AO health prof. & paraprofess. | 10,050 | 12,300 | 2,275 | 22.64 | 400 | 230 | 170 |
| **Engineering & science technicians** | **60,900** | **66,750** | **5,850** | **9.60** | **1,820** | **580** | **1,240** |
| Engineering technicians | 31,450 | 36,000 | 4,575 | 14.56 | 1,180 | 460 | 720 |
| Civil engineering technicians | 2,550 | 2,800 | 250 | 9.99 | 90 | 30 | 60 |
| Electri. & electro. technicians | 7,350 | 9,950 | 2,600 | 35.50 | 370 | 260 | 110 |
| Industrial engineering tech. | 950 | 1,000 | 25 | 2.60 | 30 | 0 | 30 |
| Mechanical engineering tech. | 2,500 | 2,850 | 350 | 14.53 | 100 | 40 | 70 |
| All Other engineering techs. | 18,100 | 19,450 | 1,325 | 7.36 | 590 | 130 | 450 |
| Drafters | 21,600 | 21,600 | 25 | 0.11 | 430 | 0 | 430 |
| Phys. & life sci. technician | 7,900 | 9,150 | 1,250 | 15.77 | 210 | 120 | 90 |
| Petroleum techn. & technol. | 50 | 50 | 0 | 23.25 | 0 | 0 | 0 |
| All Other science technicians | 7,850 | 9,100 | 1,225 | 15.72 | 210 | 120 | 80 |
| **Technicians, ex. health & engin.** | **27,400** | **38,250** | **10,875** | **39.73** | **1,490** | **1,090** | **410** |
| Air traffic controllers | 450 | 500 | 50 | 10.93 | 20 | 0 | 10 |
| Broadcast technicians | 500 | 650 | 125 | 26.05 | 20 | 10 | 10 |
| Computer programmers | 18,250 | 27,450 | 9,175 | 50.20 | 1,020 | 920 | 100 |
| Legal assistants & technicians | 4,300 | 5,500 | 1,200 | 27.78 | 280 | 120 | 160 |
| Law clerks | 1,500 | 2,050 | 550 | 36.31 | 140 | 50 | 80 |
| Paralegal personnel | 1,100 | 1,500 | 400 | 37.33 | 70 | 40 | 30 |
| Title exam. & other legal assts. | 1,750 | 2,000 | 250 | 14.46 | 70 | 30 | 40 |
| Programmers, numerical cntrl tool | 400 | 450 | 50 | 14.06 | 10 | 10 | 0 |
| Radio operators | 150 | 200 | 25 | 11.66 | 10 | 0 | 0 |
| Technical assistants, library | 1,650 | 1,750 | 100 | 6.44 | 100 | 10 | 80 |
| All Other technicians | 1,650 | 1,800 | 150 | 9.00 | 50 | 10 | 40 |
| **AO prof., paraprof., & techn. wkrs.** | **21,250** | **23,800** | **2,525** | **11.90** | **570** | **250** | **320** |
| **Marketing & sales occupations** | **418,350** | **487,300** | **68,925** | **16.48** | **23,300** | **6,890** | **16,410** |
| **Cashiers** | **72,000** | **88,350** | **16,350** | **22.70** | **3,020** | **1,630** | **1,390** |
| **Counter & rental clerks** | **6,200** | **7,000** | **800** | **13.07** | **480** | **80** | **400** |
| **Insurance sales workers** | **16,800** | **18,100** | **1,300** | **7.81** | **820** | **130** | **690** |
| **Real estate agents & brokers** | **20,750** | **25,650** | **4,875** | **23.52** | **1,860** | **490** | **1,370** |
| Brokers, real estate | 1,650 | 2,050 | 375 | 23.38 | 150 | 40 | 110 |
| Sales agents, real estate | 19,100 | 23,600 | 4,500 | 23.53 | 1,710 | 450 | 1,260 |
| **Real estate appraisers** | **850** | **1,100** | **225** | **27.03** | **80** | **20** | **80** |
| **Salespersons, retail** | **128,000** | **144,700** | **16,675** | **13.04** | **7,380** | **1,670** | **5,710** |
| **Securities & fin. serv. sales** | **5,950** | **9,000** | **3,075** | **51.71** | **880** | **310** | **370** |
| **Stock clerks, sales floor** | **34,300** | **36,700** | **2,400** | **7.03** | **1,840** | **240** | **1,390** |
| **Travel agents** | **2,800** | **3,750** | **950** | **34.54** | **220** | **100** | **130** |

State of Michigan
OCCUPATIONAL EMPLOYMENT PROJECTIONS
1985 - 1995
*(For Occupations of 50 Employment or Greater)*

| OCCUPATION NAME | 1985 EMPLOYMENT | 1995 EMPLOYMENT | EMPLOYMENT CHANGE NUMBER | EMPLOYMENT CHANGE RATE | ANNUAL AVERAGE OPENINGS TOTAL | GROWTH | REPLACEMENT |
|---|---|---|---|---|---|---|---|
| All Other sales & related workers | 130,750 | 153,000 | 22,225 | 17.00 | 7,120 | 2,220 | 4,890 |
| Admin. support occup., in. clerical | 835,400 | 879,050 | 43,650 | 5.87 | 21,090 | 4,360 | 16,710 |
| Adjusters & investigators | 22,850 | 26,300 | 3,625 | 15.97 | 880 | 360 | 520 |
| Adjustment clerks | 3,350 | 3,850 | 500 | 14.66 | 120 | 50 | 70 |
| Bill & account collectors | 3,150 | 4,050 | 875 | 27.67 | 180 | 90 | 90 |
| Ins. adj., exam., & investigators | 2,400 | 2,850 | 450 | 18.58 | 80 | 40 | 40 |
| Ins. appraisers, auto damage | 200 | 250 | 25 | 11.56 | 10 | 0 | 0 |
| Insurance claims clerks | 3,300 | 3,700 | 375 | 11.47 | 90 | 40 | 50 |
| Insurance examining clerks | 350 | 450 | 50 | 15.00 | 10 | 10 | 10 |
| Ins. policy processing clerk | 4,400 | 5,050 | 650 | 14.56 | 180 | 60 | 120 |
| License clerks | 150 | 200 | 25 | 9.13 | 10 | 0 | 0 |
| Welfare elig. wkrs. & interviewer | 5,300 | 6,000 | 700 | 13.06 | 220 | 70 | 150 |
| Communications equip. operator | 10,450 | 11,350 | 925 | 8.95 | 350 | 90 | 280 |
| Telephone operators | 9,900 | 10,900 | 1,025 | 10.28 | 350 | 100 | 250 |
| Central office operators | 300 | 300 | 0 | 0.00 | 10 | 0 | 10 |
| Directory assist. operator | 950 | 950 | 0 | 0.00 | 20 | 0 | 20 |
| Switchboard operators | 8,700 | 9,700 | 1,025 | 11.73 | 320 | 100 | 220 |
| Telegraph & teletype operators | 100 | 100 | 0 | -15.95 | 0 | 0 | 0 |
| All communications equip. oper. | 400 | 350 | -50 | -15.86 | 0 | 0 | 0 |
| Computer op. & peripheral eq. ops. | 9,800 | 12,550 | 2,750 | 28.10 | 380 | 280 | 100 |
| Computer op., ex. periph. eqpt. | 8,800 | 11,300 | 2,500 | 28.48 | 340 | 250 | 90 |
| Peripheral EDP equip. operators | 1,000 | 1,250 | 250 | 24.76 | 40 | 20 | 20 |
| Dupl., mail, & other off. eqpt. op. | 4,450 | 4,750 | 300 | 6.95 | 120 | 30 | 90 |
| Duplicating machine operator | 950 | 1,000 | 25 | 2.37 | 30 | 0 | 20 |
| Transit clerks | 450 | 550 | 100 | 21.31 | 20 | 10 | 10 |
| All Other office machine oper | 3,050 | 3,200 | 200 | 6.28 | 70 | 20 | 60 |
| Fin. records proc. occupations | 75,850 | 80,700 | 4,875 | 6.43 | 3,230 | 490 | 2,740 |
| Billing, cost, & rate clerks | 10,250 | 11,300 | 1,075 | 10.57 | 360 | 110 | 250 |
| Bill., post., & calc. mach. clerk | 2,600 | 2,950 | 375 | 14.28 | 80 | 40 | 40 |
| Bookkeep., acct., & aud. clerk | 56,400 | 60,400 | 4,000 | 7.09 | 2,660 | 400 | 2,260 |
| Payroll & timekeeping clerks | 6,600 | 6,050 | -550 | -8.73 | 120 | -50 | 180 |
| Information clerks | 29,800 | 34,900 | 4,875 | 18.48 | 1,250 | 490 | 990 |
| Hotel desk clerks | 2,450 | 3,050 | 575 | 23.22 | 170 | 60 | 110 |
| New accounts clerks | 1,900 | 2,450 | 550 | 28.68 | 120 | 50 | 70 |
| Receptionists & info. clerks | 23,400 | 26,250 | 2,900 | 12.39 | 920 | 290 | 630 |

State of Michigan
OCCUPATIONAL EMPLOYMENT PROJECTIONS
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| OCCUPATION NAME | 1985 EMPLOYMENT | 1995 EMPLOYMENT | EMPLOYMENT CHANGE NUMBER | EMPLOYMENT CHANGE RATE | ANNUAL AVERAGE OPENINGS TOTAL | GROWTH | REPLACEMENT |
|---|---|---|---|---|---|---|---|
| Res. & ticket agt. & travel clerk | 1,900 | 2,750 | 875 | 46.15 | 130 | 90 | 50 |
| Reserv. & trans. ticket agent | 1,650 | 2,400 | 775 | 47.98 | 120 | 80 | 40 |
| Travel clerks | 250 | 350 | 100 | 34.90 | 20 | 10 | 10 |
| **Mail & message distrib. worker** | **18,800** | **20,800** | **2,000** | **10.64** | **800** | **200** | **600** |
| Mail clerks, ex. mail mach. | 2,700 | 2,800 | 125 | 4.55 | 110 | 10 | 90 |
| Messengers | 1,300 | 1,550 | 225 | 17.26 | 100 | 20 | 70 |
| Postal mail carriers | 10,750 | 12,300 | 1,575 | 14.64 | 480 | 160 | 320 |
| Postal service clerks | 4,050 | 4,150 | 75 | 1.96 | 120 | 10 | 120 |
| **Mat. rec., sched., disp., & rel.** | **78,350** | **78,150** | **-150** | **-0.24** | **2,160** | **-10** | **2,170** |
| Dispatchers | 5,150 | 5,750 | 600 | 11.81 | 190 | 60 | 130 |
| Dispatch., ex. pol., fire,ambul | 3,700 | 4,150 | 450 | 12.26 | 140 | 50 | 100 |
| Dispatch., police, fire, ambul. | 1,450 | 1,600 | 150 | 10.64 | 50 | 20 | 40 |
| Meter readers, utilities | 1,550 | 1,450 | -100 | -8.54 | 10 | 0 | 20 |
| Order fillers, whsle & ret. sales | 4,950 | 4,700 | -200 | -4.50 | 110 | -10 | 130 |
| Procurement clerks | 1,350 | 1,350 | 50 | 3.54 | 40 | 0 | 40 |
| Prod., plan., & exped. clerk | 8,900 | 8,150 | -700 | -8.25 | 160 | -60 | 230 |
| Stock clerks, storeroom/whse. | 23,900 | 22,050 | -1,825 | -7.69 | 440 | -170 | 630 |
| Traffic, ship., & rec. clerk | 24,350 | 25,550 | 1,225 | 5.02 | 810 | 120 | 690 |
| Transportation agents | 350 | 550 | 200 | 62.81 | 30 | 20 | 10 |
| Weighers, meas., check., & rel. | 3,250 | 3,000 | -200 | -7.19 | 100 | -10 | 120 |
| All Other mat. rec., sched. | 4,700 | 5,550 | 900 | 19.08 | 260 | 90 | 170 |
| **Records proc. occup., ex. financial** | **27,050** | **29,800** | **2,750** | **10.14** | **870** | **270** | **600** |
| Advertising clerks | 400 | 400 | 25 | 7.97 | 10 | 0 | 10 |
| Brokerage clerks | 550 | 700 | 150 | 27.49 | 30 | 20 | 20 |
| File clerks | 8,050 | 8,250 | 225 | 2.91 | 190 | 20 | 160 |
| Library assistants | 4,950 | 5,300 | 350 | 6.87 | 150 | 30 | 120 |
| Order clerks, mat., merch. & serv. | 9,050 | 10,450 | 1,400 | 15.41 | 350 | 140 | 210 |
| Personnel clerks, ex. payroll | 3,100 | 3,500 | 375 | 12.14 | 90 | 40 | 50 |
| Statement clerks | 950 | 1,200 | 225 | 22.11 | 50 | 20 | 30 |
| **Secretaries, stenog. & typists** | **140,450** | **143,900** | **3,425** | **2.45** | **3,490** | **340** | **3,150** |
| Secretaries | 106,250 | 111,650 | 5,400 | 5.07 | 3,000 | 540 | 2,460 |
| Stenographers | 6,200 | 3,600 | -2,550 | -41.82 | -110 | -250 | 140 |
| Typists | 28,050 | 28,650 | 625 | 2.25 | 610 | 60 | 550 |
| **Other clerical & admin. sup. w** | **217,950** | **236,250** | **18,275** | **8.39** | **7,450** | **1,830** | **5,620** |
| Court clerks | 1,100 | 1,250 | 175 | 16.37 | 50 | 20 | 30 |
| Credit authorizers | 650 | 800 | 150 | 22.12 | 30 | 10 | 20 |
| Credit checkers | 1,350 | 1,700 | 350 | 25.99 | 60 | 30 | 30 |
| Customer serv. representative | 3,700 | 3,500 | -175 | -5.64 | 60 | -10 | 80 |
| Data entry keyers, ex. composing | 13,000 | 11,500 | -1,475 | -11.57 | -50 | -140 | 100 |
| Data keyers, composing | 650 | 850 | 200 | 32.07 | 30 | 20 | 10 |
| General office clerks | 90,050 | 95,550 | 5,500 | 6.11 | 3,390 | 550 | 2,840 |
| Loan & credit clerks | 2,800 | 3,500 | 700 | 25.21 | 150 | 70 | 80 |
| Municipal clerks | 800 | 900 | 75 | 9.60 | 30 | 10 | 20 |
| Proofreaders & copy markers | 550 | 650 | 125 | 21.15 | 40 | 10 | 30 |

State of Michigan
OCCUPATIONAL EMPLOYMENT PROJECTIONS
1985 - 1995
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| OCCUPATION NAME | 1985 EMPLOYMENT | 1995 EMPLOYMENT | EMPLOYMENT CHANGE NUMBER | EMPLOYMENT CHANGE RATE | ANNUAL AVERAGE OPENINGS TOTAL | GROWTH | REPLACEMENT |
|---|---|---|---|---|---|---|---|
| Real estate clerks | 750 | 950 | 225 | 30.69 | 50 | 20 | 30 |
| Statistical clerks | 3,300 | 2,550 | -700 | -22.23 | 0 | -60 | 80 |
| Teacher aides & educ. assts. | 20,150 | 23,950 | 3,775 | 18.79 | 870 | 380 | 490 |
| Tellers | 25,350 | 26,000 | 650 | 2.55 | 360 | 60 | 300 |
| All Other clerical & adm. support | 53,750 | 62,550 | 8,800 | 16.36 | 2,390 | 880 | 1,510 |
| **Service occupations** | **647,250** | **734,650** | **87,375** | **13.50** | **35,910** | **8,740** | **27,170** |
| Clean. & bldg. serv. ex. priv.hshld | 92,400 | 98,450 | 7,050 | 7.62 | 5,800 | 700 | 5,090 |
| Janitors & cleaners, incl. maids | 91,850 | 98,850 | 7,050 | 7.66 | 5,790 | 700 | 5,080 |
| Pest controllers & assistant | 600 | 600 | 0 | 0.00 | 10 | 0 | 10 |
| Food & bev. prep. & serv. occup. | 245,050 | 289,500 | 44,450 | 18.14 | 10,200 | 4,440 | 5,750 |
| Bakers, bread & pastry | 4,500 | 5,350 | 850 | 19.15 | 230 | 90 | 140 |
| Bartenders | 13,450 | 15,550 | 2,075 | 15.35 | 690 | 210 | 480 |
| Cooks, ex. short order | 30,100 | 35,400 | 5,300 | 17.61 | 1,490 | 530 | 960 |
| Cooks, instit. or cafeteria | 11,350 | 13,250 | 1,900 | 16.70 | 550 | 190 | 360 |
| Cooks, restaurant | 18,750 | 22,150 | 3,400 | 18.16 | 940 | 340 | 600 |
| Cooks, sh. ord. & sp. fast food | 21,850 | 26,050 | 4,200 | 19.21 | 800 | 420 | 380 |
| Din. rm. & cafeteria attendants | 17,250 | 20,400 | 3,175 | 18.39 | 570 | 320 | 250 |
| Food prep. & ser. wk., fast food | 30,000 | 35,800 | 5,775 | 19.26 | 1,290 | 580 | 720 |
| Food preparation workers | 29,650 | 35,000 | 5,350 | 18.01 | 1,520 | 530 | 990 |
| Hosts & hostesses, rest./lounge | 5,950 | 7,150 | 1,200 | 20.00 | 310 | 120 | 190 |
| Waiters & waitresses | 65,300 | 77,600 | 12,325 | 18.88 | 2,120 | 1,230 | 890 |
| All Other food service workers | 27,000 | 31,200 | 4,200 | 15.57 | 1,180 | 420 | 760 |
| **Health service & rel. occupations** | **68,750** | **82,250** | **13,500** | **19.64** | **3,210** | **1,350** | **1,880** |
| Ambulance drivers & attendants | 100 | 150 | 25 | 28.77 | 10 | 0 | 0 |
| Dental assistants | 6,400 | 7,800 | 1,400 | 21.80 | 190 | 140 | 50 |
| Medical assistants | 6,500 | 8,850 | 2,350 | 36.02 | 390 | 230 | 160 |
| Nursing aides & psych. aides | 50,800 | 59,900 | 9,075 | 17.88 | 2,450 | 910 | 1,540 |
| Nursing aides & orderlies | 50,100 | 59,150 | 9,050 | 18.04 | 2,430 | 900 | 1,520 |
| Psychiatric aides | 700 | 750 | 50 | 6.24 | 20 | 0 | 20 |
| Occupational therapy assistants | 200 | 200 | 0 | 1.39 | 0 | 0 | 0 |
| Pharmacy assistants | 3,750 | 4,250 | 500 | 13.36 | 130 | 50 | 80 |
| Phys. & correct. therapy assisst. | 1,050 | 1,200 | 150 | 15.14 | 40 | 20 | 20 |
| **Personal service occupations** | **49,350** | **55,250** | **5,925** | **12.02** | **2,330** | **590** | **1,730** |
| Amusement & recreation attendants | 4,450 | 4,900 | 475 | 10.61 | 180 | 50 | 140 |
| Baggage porters & bellhops | 900 | 1,200 | 275 | 31.28 | 70 | 30 | 40 |
| Barbers | 2,950 | 2,450 | -475 | -17.01 | 170 | -40 | 220 |
| Child care workers | 11,850 | 13,200 | 1,375 | 11.50 | 510 | 140 | 370 |

State of Michigan
OCCUPATIONAL EMPLOYMENT PROJECTIONS
1985 - 1995
*(For Occupations of 50 Employment or Greater)*

| OCCUPATION NAME | 1985 EMPLOYMENT | 1995 EMPLOYMENT | EMPLOYMENT CHANGE NUMBER | EMPLOYMENT CHANGE RATE | ANNUAL AVERAGE OPENINGS TOTAL | GROWTH | REPLACEMENT |
|---|---|---|---|---|---|---|---|
| Cosmetologists & rel. worker | 18,600 | 19,450 | 875 | 4.65 | 660 | 90 | 570 |
| Hairdress., hairsty., cosmetol. | 17,850 | 18,700 | 850 | 4.69 | 630 | 80 | 550 |
| Manicurists | 600 | 600 | 25 | 2.60 | 20 | 0 | 20 |
| Shampooers | 150 | 150 | 0 | 8.59 | 10 | 0 | 0 |
| Flight attendants | 850 | 1,550 | 675 | 76.36 | 90 | 70 | 20 |
| Guides | 400 | 400 | 25 | 4.09 | 10 | 0 | 10 |
| Social welfare service aides | 7,850 | 10,500 | 2,675 | 34.33 | 620 | 270 | 350 |
| Ushers | 1,450 | 1,550 | 75 | 5.41 | 20 | 10 | 10 |
| **Private household workers** | **81,950** | **79,700** | **-2,250** | **-2.78** | **7,710** | **-220** | **7,930** |
| Cooks, private household | 950 | 900 | 0 | -2.78 | 230 | 0 | 240 |
| Housekeepers & butlers | 1,650 | 1,850 | 200 | 11.88 | 230 | 20 | 210 |
| Child care workers, pvt. hshhld. | 15,800 | 16,350 | 525 | 3.35 | 590 | 50 | 540 |
| Cleaners & serv., pvt. hshld. | 22,600 | 20,750 | -1,825 | -8.15 | 2,970 | -170 | 3,160 |
| **Protective service occupations** | **69,500** | **79,500** | **10,000** | **14.41** | **3,580** | **1,000** | **2,570** |
| Correction officers & jailers | 3,700 | 4,650 | 950 | 25.62 | 150 | 90 | 60 |
| Fire fighting occupations | 9,250 | 10,450 | 1,200 | 13.06 | 270 | 120 | 150 |
| Fire fighters | 7,500 | 8,450 | 950 | 12.78 | 170 | 100 | 70 |
| Fire fighting & prevent. supers. | 1,400 | 1,600 | 225 | 15.27 | 90 | 20 | 70 |
| Fire inspectors | 350 | 400 | 25 | 10.40 | 10 | 0 | 10 |
| Police & detectives | 18,400 | 20,400 | 2,025 | 11.01 | 350 | 200 | 140 |
| Police & detective superv. | 2,450 | 2,700 | 250 | 9.81 | 60 | 20 | 40 |
| Police detectives & investig. | 1,400 | 1,550 | 125 | 9.62 | 20 | 10 | 10 |
| Police patrol officers | 14,500 | 16,150 | 1,650 | 11.35 | 260 | 160 | 100 |
| Sheriffs & other law enforcement | 2,300 | 2,400 | 125 | 5.02 | 80 | 10 | 70 |
| Bailiffs | 300 | 350 | 25 | 9.88 | 10 | 0 | 10 |
| Fish & game wardens | 250 | 250 | 0 | 5.47 | 10 | 0 | 10 |
| Parking enforcement officers | 150 | 150 | 25 | 23.57 | 10 | 0 | 0 |
| Sheriffs, dep. sh., & US marsh. | 1,600 | 1,650 | 50 | 2.44 | 50 | 0 | 50 |
| Other protective service workers | 35,850 | 41,550 | 5,700 | 15.94 | 2,730 | 570 | 2,160 |
| Crossing guards | 1,400 | 1,500 | 75 | 5.80 | 200 | 10 | 190 |
| Detect. & invest., ex. public | 1,350 | 1,400 | 50 | 3.21 | 90 | 0 | 80 |
| Guards | 27,050 | 32,050 | 5,050 | 18.65 | 2,320 | 500 | 1,810 |
| All protective service workers | 6,050 | 6,600 | 550 | 9.05 | 130 | 50 | 70 |
| **All Other service occupations** | **40,200** | **48,950** | **8,725** | **21.68** | **3,090** | **870** | **2,220** |
| Housekeepers, institutional | 3,900 | 4,900 | 975 | 24.66 | 300 | 100 | 200 |

State of Michigan
OCCUPATIONAL EMPLOYMENT PROJECTIONS
1985 - 1995
*(For Occupations of 50 Employment or Greater)*

| OCCUPATION NAME | 1985 EMPLOYMENT | 1995 EMPLOYMENT | EMPLOYMENT CHANGE NUMBER | EMPLOYMENT CHANGE RATE | ANNUAL AVERAGE OPENINGS TOTAL | GROWTH | REPLACEMENT |
|---|---|---|---|---|---|---|---|
| All Other service workers | 36,300 | 44,050 | 7,750 | 21.36 | 2,800 | 780 | 2,020 |
| **Ag., forest., fish., & rel. occup.** | **117,600** | **112,600** | **-5,000** | **-4.28** | **6,420** | **-490** | **6,930** |
| **Superv., farm., for., & ag. related** | **1,350** | **1,450** | **50** | **4.22** | **50** | **10** | **50** |
| **Agriculture related occupations** | **28,950** | **30,850** | **3,850** | **14.31** | **1,320** | **390** | **940** |
| Animal caretakers, ex. farm | 1,800 | 2,200 | 400 | 21.71 | 80 | 40 | 40 |
| Gardeners & groundskeepers | 24,500 | 27,850 | 3,375 | 13.76 | 1,210 | 340 | 870 |
| Graders & sorters, ag. products | 650 | 750 | 100 | 14.53 | 40 | 10 | 30 |
| **Farm occupations** | **23,800** | **21,650** | **-2,100** | **-8.97** | **350** | **-200** | **580** |
| Farm workers | 22,850 | 20,550 | -2,250 | -10.00 | 310 | -220 | 530 |
| Nursery workers | 950 | 1,100 | 150 | 15.22 | 40 | 10 | 30 |
| **Farm operators & managers** | **60,800** | **53,500** | **-7,275** | **-12.01** | **4,520** | **-720** | **5,250** |
| **Fishers, hunters, & trappers** | **300** | **300** | **0** | **1.50** | **10** | **0** | **10** |
| Fishers, hunters, & trappers | 250 | 250 | 0 | 2.05 | 10 | 0 | 10 |
| **Forestry & logging occupations** | **3,050** | **3,300** | **250** | **7.97** | **110** | **20** | **80** |
| Fallers & buckers | 1,400 | 1,500 | 100 | 7.77 | 50 | 10 | 40 |
| Forest & conservation worker | 550 | 500 | -25 | -6.73 | 10 | 0 | 20 |
| Logging tractor operators | 550 | 700 | 125 | 24.29 | 20 | 10 | 10 |
| Log graders & scalers | 50 | 50 | 0 | 3.08 | 0 | 0 | 0 |
| Log handling equip. operator | 300 | 300 | 25 | 6.38 | 10 | 0 | 10 |
| All Other timber cutting & logging | 150 | 150 | 25 | 9.87 | 10 | 0 | 0 |
| **All Other agric., forestry, fishing** | **1,350** | **1,600** | **250** | **17.65** | **60** | **20** | **40** |
| **Blue collar worker supervisors** | **67,250** | **65,750** | **-1,450** | **-2.21** | **1,740** | **-140** | **1,890** |
| **Construction trades** | **99,700** | **109,700** | **10,000** | **10.04** | **3,750** | **1,000** | **2,750** |
| **Air hammer operators** | **250** | **300** | **25** | **8.92** | **10** | **0** | **10** |
| **Bricklayers & stone masons** | **4,300** | **5,050** | **800** | **18.67** | **200** | **80** | **120** |
| Brick masons | 4,050 | 4,800 | 725 | 18.11 | 190 | 70 | 110 |
| Stone masons | 200 | 250 | 50 | 29.54 | 10 | 10 | 10 |
| **Carpenters** | **22,100** | **25,750** | **3,650** | **16.51** | **1,080** | **370** | **720** |
| **Carpet installers** | **900** | **1,000** | **125** | **15.34** | **30** | **10** | **10** |
| **Ceil. tile inst. & acoustic. carpen.** | **400** | **500** | **100** | **26.20** | **20** | **10** | **10** |
| **Concrete & terrazzo finishers** | **3,200** | **3,700** | **500** | **15.70** | **150** | **50** | **100** |
| **Drywall installers & finishers** | **1,900** | **2,400** | **475** | **24.78** | **80** | **50** | **10** |
| Drywall installers | 1,150 | 1,450 | 275 | 24.95 | 40 | 30 | 10 |
| Tapers | 600 | 750 | 150 | 25.64 | 20 | 20 | 0 |
| Lathers | 150 | 200 | 25 | 20.27 | 0 | 0 | 0 |
| **Electricians** | **21,650** | **23,100** | **1,275** | **5.83** | **870** | **130** | **540** |
| **Fence erectors** | **450** | **550** | **50** | **12.34** | **20** | **10** | **20** |
| **Glaziers** | **1,100** | **1,300** | **200** | **18.42** | **40** | **20** | **20** |
| **Hard tile setters** | **800** | **950** | **175** | **22.34** | **40** | **20** | **20** |
| **Highway maintenance workers** | **3,950** | **4,050** | **75** | **1.89** | **150** | **10** | **140** |
| **Insulation workers** | **1,550** | **1,950** | **375** | **25.08** | **80** | **40** | **20** |
| **Painters & paperhangers, const.** | **8,650** | **9,150** | **500** | **5.85** | **330** | **50** | **280** |

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OCCUPATIONAL EMPLOYMENT PROJECTIONS
1985 - 1995
*(For Occupations of 50 Employment or Greater)*

| OCCUPATION NAME | 1985 EMPLOYMENT | 1995 EMPLOYMENT | EMPLOYMENT CHANGE NUMBER | EMPLOYMENT CHANGE RATE | ANNUAL AVERAGE OPENINGS TOTAL | ANNUAL AVERAGE OPENINGS GROWTH | ANNUAL AVERAGE OPENINGS REPLACEMENT |
|---|---|---|---|---|---|---|---|
| Pipelayers | 650 | 750 | 125 | 18.73 | 40 | 10 | 20 |
| Pipelaying fitters | 50 | 50 | 0 | 23.46 | 0 | 0 | 0 |
| Plasterers | 250 | 350 | 50 | 19.33 | 20 | 10 | 10 |
| Plumbers, pipefitters, & steamfitter | 15,100 | 15,500 | 400 | 2.66 | 440 | 40 | 400 |
| Rail maintenance crafts | 1,100 | 800 | -225 | -24.13 | 10 | -20 | 30 |
| Roofers | 4,500 | 5,300 | 800 | 17.80 | 150 | 80 | 70 |
| Sep. tank serv. & sewer pipe clean. | 250 | 250 | 25 | 7.28 | 10 | 0 | 10 |
| Structural & reinfor. metal wkr. | 1,850 | 2,150 | 325 | 17.32 | 70 | 30 | 30 |
| Reinforcing metal workers | 600 | 700 | 100 | 15.00 | 20 | 10 | 10 |
| Structural metal workers | 1,250 | 1,450 | 225 | 18.45 | 50 | 20 | 20 |
| All Other constuction trades workers | 4,600 | 4,800 | 200 | 4.15 | 170 | 20 | 150 |
| Extractive & rel. wk., in. blasters | 3,850 | 4,050 | 200 | 5.38 | 100 | 20 | 80 |
| Blasters & explosives workers | 100 | 100 | 0 | 8.20 | 0 | 0 | 0 |
| Derrick operators, oil & gas | 100 | 100 | 0 | -12.88 | 0 | 0 | 0 |
| Rotary drill op., oil & gas | 200 | 200 | 0 | -12.57 | 0 | 0 | 0 |
| Roustabouts | 700 | 600 | -75 | -14.01 | 0 | 0 | 10 |
| Service unit operators | 400 | 350 | -25 | -10.90 | 0 | 0 | 10 |
| AO extractive workers, ex. helpers | 2,300 | 2,700 | 375 | 16.42 | 100 | 40 | 60 |
| Mechanics, installers, & repaire | 170,450 | 185,550 | 15,100 | 8.86 | 5,900 | 1,510 | 4,390 |
| Comm. equip. mech., inst., & rep. | 2,250 | 1,900 | -300 | -14.90 | 30 | -20 | 70 |
| Central off. & PBX inst. & rep. | 1,000 | 900 | -75 | -10.97 | 20 | 0 | 30 |
| Frame wirers, central office | 400 | 250 | -100 | -33.01 | 0 | 0 | 10 |
| Radio mechanics | 450 | 400 | -25 | -8.37 | 10 | 0 | 10 |
| Signal or track switch maint. | 300 | 200 | -50 | -24.21 | 0 | 0 | 10 |
| AO communication equip. mechcanics | 100 | 100 | 25 | 24.68 | 0 | 0 | 0 |
| Electric & electronic craft wrkrs. | 14,100 | 13,700 | -375 | -2.82 | 220 | -30 | 280 |
| Data process. equip. repairers | 1,100 | 1,500 | 425 | 39.78 | 50 | 40 | 10 |
| Elect. installers & repairer | 600 | 700 | 100 | 16.14 | 20 | 10 | 10 |
| Electrical powerline installers | 3,100 | 2,350 | -725 | -24.19 | -10 | -70 | 60 |
| Elec. motor & transf. repair | 950 | 1,150 | 200 | 22.86 | 40 | 20 | 20 |
| Elec. home enter. eq. repair | 1,500 | 1,800 | 300 | 19.92 | 80 | 30 | 50 |
| Electron. repair commer./ind.eqpt. | 750 | 950 | 225 | 29.38 | 50 | 20 | 30 |
| Station installers & repairers | 3,200 | 2,150 | -1,025 | -32.90 | -40 | -100 | 50 |
| Tel. & cable TV line in. & rep. | 2,950 | 3,100 | 150 | 5.46 | 40 | 20 | 30 |
| Mach. & rel. mech., inst., & rep. | 59,700 | 62,550 | 2,850 | 4.76 | 1,980 | 280 | 1,700 |
| Industrial machinery mechanics | 15,550 | 15,550 | 0 | -0.12 | 410 | 0 | 420 |
| Marine mechanic | 150 | 150 | 0 | -4.98 | 0 | 0 | 0 |
| Sewing machine mechanic | 300 | 250 | -25 | -13.68 | 0 | 0 | 10 |
| Mach. maint. mech., tex. m | 50 | 50 | 0 | -10.73 | 0 | 0 | 0 |
| Water & plant plant mechanic | 1,750 | 1,800 | 25 | 1.80 | 50 | 0 | 50 |
| All Other mach. maint. mechanics | 13,350 | 13,350 | 0 | 0.00 | 360 | 0 | 360 |
| Machinery maintenance worker | 3,400 | 3,150 | -225 | -7.28 | 130 | -10 | 150 |
| Maint. repairers, gen. utility | 31,950 | 35,750 | 3,800 | 11.92 | 1,290 | 380 | 910 |
| Millwrights | 8,800 | 8,100 | -675 | -7.94 | 160 | -60 | 230 |

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OCCUPATIONAL EMPLOYMENT PROJECTIONS
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*(For Occupations of 50 Employment or Greater)*

| OCCUPATION NAME | 1985 EMPLOYMENT | 1995 EMPLOYMENT | EMPLOYMENT CHANGE NUMBER | EMPLOYMENT CHANGE RATE | ANNUAL AVERAGE OPENINGS TOTAL | GROWTH | REPLACEMENT |
|---|---|---|---|---|---|---|---|
| **Vehicle & mobile eq. mech. & rep.** | **54,800** | **64,750** | **9,925** | **18.09** | **2,170** | **990** | **1,180** |
| Aircraft mech. & engine special | 1,250 | 1,850 | 575 | 46.95 | 80 | 60 | 20 |
| Auto. body & rel. repairers | 12,000 | 14,450 | 2,475 | 20.57 | 490 | 250 | 250 |
| Auto. & motorcycle mechanics | 27,000 | 32,150 | 5,125 | 18.94 | 1,090 | 510 | 570 |
| Bus & truck mech. & dies. special. | 9,500 | 10,850 | 1,350 | 14.16 | 340 | 130 | 210 |
| Farm equipment mechanics | 1,450 | 1,500 | 100 | 6.62 | 40 | 10 | 30 |
| Mobile heavy equip. mechanic | 1,200 | 1,350 | 125 | 10.76 | 40 | 10 | 30 |
| Rail car repairers | 500 | 400 | -100 | -24.33 | 0 | 0 | 10 |
| Small engine specialists | 1,900 | 2,200 | 300 | 15.79 | 90 | 30 | 60 |
| **Other mech., inst., & repairers** | **39,800** | **42,650** | **3,075** | **7.77** | **1,490** | **310** | **1,180** |
| Bicycle repairers | 500 | 500 | 0 | 0.99 | 10 | 0 | 10 |
| Coin & vend. mach. serv. & rep. | 850 | 900 | 100 | 10.97 | 30 | 10 | 20 |
| Elect. meter inst. & rep. | 1,150 | 1,100 | -25 | -5.30 | 30 | 0 | 40 |
| Electromed. & biomed. eq. rep. | 300 | 300 | 25 | 10.47 | 10 | 0 | 10 |
| Heat., A/C & refrig. mech. & rep. | 6,050 | 7,050 | 1,000 | 16.72 | 260 | 100 | 160 |
| Home appl. & power tool rep. | 2,400 | 2,650 | 275 | 11.25 | 130 | 30 | 100 |
| Locksmiths & safe repairers | 550 | 550 | 0 | 0.00 | 40 | 0 | 40 |
| Mech. control & valve inst./rep. | 200 | 200 | 0 | 4.78 | 10 | 0 | 10 |
| Menders, garments & linens | 300 | 300 | 0 | -9.59 | 0 | 0 | 10 |
| Mobile home repairers | 50 | 50 | 0 | 8.01 | 0 | 0 | 0 |
| Musical instru. rep. & tuner | 200 | 200 | 0 | 3.02 | 10 | 0 | 10 |
| Off. mach. & cash reg. servicer | 950 | 1,200 | 225 | 23.16 | 60 | 20 | 40 |
| Precision instrument repairer | 1,950 | 1,950 | 0 | -0.42 | 120 | 0 | 120 |
| Riggers | 1,200 | 1,150 | 0 | -2.61 | 30 | 0 | 30 |
| Tire repairers & changers | 2,200 | 2,450 | 275 | 12.94 | 60 | 30 | 30 |
| Watchmakers | 250 | 300 | 50 | 17.67 | 20 | 0 | 20 |
| All Other mech., install., & rep. | 20,450 | 21,650 | 1,225 | 6.00 | 640 | 120 | 520 |
| **Precision production occupations** | **137,950** | **138,050** | **75** | **0.05** | **4,930** | **10** | **4,930** |
| **Precision food workers** | **8,950** | **8,050** | **-825** | **-9.58** | **230** | **-80** | **320** |
| Bakers, manufacturing | 450 | 300 | -100 | -26.03 | 0 | 0 | 10 |
| Butchers & meatcutters | 7,750 | 7,150 | -575 | -7.81 | 230 | -50 | 290 |
| Food batchmakers | 450 | 400 | -50 | -14.96 | 10 | 0 | 10 |
| AO precision food & tobacco worker | 300 | 200 | -50 | -24.93 | 0 | 0 | 10 |
| **Precision metal workers** | **65,800** | **64,950** | **-800** | **-1.26** | **2,200** | **-70** | **2,280** |
| Boilermakers | 850 | 900 | 75 | 8.95 | 30 | 10 | 20 |
| Etchers & engrav., hand or mach. | 250 | 250 | 25 | 7.87 | 10 | 0 | 10 |
| Hand workers, jewelry & rel. | 100 | 100 | 0 | 7.12 | 0 | 0 | 0 |
| Instrument makers, precision | 600 | 700 | 100 | 15.88 | 30 | 10 | 20 |
| Jewelers & silversmiths | 1,000 | 1,250 | 250 | 26.17 | 80 | 30 | 60 |
| Layout workers, metal | 650 | 550 | -50 | -11.21 | 20 | 0 | 30 |
| Machinists | 22,800 | 22,900 | 75 | 0.37 | 750 | 10 | 740 |
| Pattern & model makers, metal | 600 | 400 | -150 | -30.30 | 0 | -10 | 20 |
| Sheet metal workers | 9,150 | 9,550 | 425 | 4.73 | 250 | 40 | 210 |
| Tool & die makers | 24,550 | 23,300 | -1,200 | -5.03 | 760 | -110 | 880 |

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|---|---|---|---|---|---|---|---|
| All Other precision metal workers | 5,350 | 5,000 | -300 | -5.95 | 260 | -20 | 280 |
| **Precision printing workers** | **3,050** | **3,350** | **300** | **10.28** | **110** | **30** | **80** |
| Bookbinders | 300 | 350 | 25 | 11.89 | 20 | 0 | 10 |
| Compositors, typeset., & arrange. | 900 | 900 | 0 | -0.42 | 20 | 0 | 20 |
| Lithog. & photoengr. workers | 1,300 | 1,500 | 200 | 15.45 | 60 | 20 | 40 |
| All Other precision printing work. | 550 | 600 | 75 | 14.61 | 20 | 10 | 10 |
| **Precision textile ,apparel & furn.** | **6,450** | **7,200** | **750** | **11.83** | **530** | **80** | **450** |
| Custom tailors & sewers | 2,950 | 3,200 | 250 | 8.10 | 290 | 20 | 260 |
| Patternmakers & layout workers | 200 | 150 | 0 | -2.87 | 0 | 0 | 0 |
| Shoe & leather wkrs. & rep. | 200 | 150 | -25 | -29.02 | 10 | 0 | 20 |
| Upholsterers | 2,050 | 2,700 | 625 | 30.22 | 180 | 60 | 110 |
| All Other prec. tex., app., & fur. | 1,100 | 1,050 | -25 | -4.90 | 50 | 0 | 60 |
| **Precision woodworkers** | **7,350** | **8,000** | **675** | **9.32** | **400** | **70** | **330** |
| Cabinetmakers & ben. carpenter | 2,050 | 2,450 | 425 | 21.48 | 160 | 40 | 110 |
| Furniture finishers | 850 | 900 | 75 | 7.63 | 40 | 10 | 30 |
| Pattern & model makers, wood | 2,800 | 2,850 | 50 | 1.84 | 110 | 10 | 100 |
| Wood machinists | 1,100 | 1,200 | 75 | 7.36 | 70 | 10 | 60 |
| All Other precision woodworkers | 550 | 600 | 50 | 8.81 | 40 | 0 | 30 |
| **Inspectors & rel. occupations** | **37,750** | **37,150** | **-600** | **-1.63** | **1,130** | **-50** | **1,190** |
| Insp. ,test. & graders ,precision | 10,050 | 10,200 | 150 | 1.51 | 360 | 20 | 350 |
| Other insp., test., graders | 27,700 | 26,950 | -750 | -2.76 | 770 | -70 | 840 |
| **Other precision workers** | **8,850** | **9,300** | **825** | **7.23** | **340** | **80** | **270** |
| Dental lab technicians | 1,600 | 1,850 | 250 | 15.19 | 60 | 20 | 40 |
| Detail design, decor. , painters | 250 | 250 | 25 | 13.07 | 10 | 0 | 0 |
| Foundry mold & core makers | 1,300 | 900 | -350 | -29.29 | 0 | -30 | 30 |
| Molders & shapers, ex. jewel | 100 | 150 | 0 | 2.96 | 0 | 0 | 0 |
| Patternmakers, model mak.,precis. | 500 | 650 | 125 | 26.45 | 30 | 10 | 20 |
| Photog. proc. wkrs., precision | 250 | 300 | 75 | 28.23 | 10 | 10 | 0 |
| All Other precision workers | 4,650 | 5,150 | 525 | 11.16 | 230 | 50 | 180 |
| **Machine setter & set-up operator** | **231,850** | **219,100** | **-12,550** | **-5.42** | **4,770** | **-1,250** | **6,020** |
| **Num. control mach. tool op. & tend** | **2,500** | **2,800** | **375** | **14.43** | **90** | **40** | **20** |
| **Comb. mach. tool setter set-up opr** | **9,150** | **9,750** | **875** | **8.40** | **340** | **60** | **280** |
| Comb. mach. tool op. & tend. | 2,950 | 3,050 | 100 | 3.68 | 100 | 10 | 90 |
| Comb. mach. tool setter & setup | 6,200 | 6,650 | 475 | 7.71 | 240 | 50 | 190 |

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|---|---|---|---|---|---|---|---|
| **Mach. tool cut.& form. set. &** | **91,450** | **73,050** | **-18,400** | **-20.14** | **300** | **-1,830** | **2,140** |
| Drill. mach. tool setter/operator | 6,700 | 5,650 | -1,000 | -15.36 | 70 | -90 | 170 |
| Ext. & draw. ma. settter/operator | 900 | 650 | -250 | -29.94 | 0 | -20 | 10 |
| Forging machine setter/operator | 5,550 | 4,050 | -1,450 | -26.82 | -50 | -140 | 90 |
| Grinding machine setter/operator | 8,950 | 7,750 | -1,175 | -13.45 | 140 | -110 | 260 |
| Lathe machine tool setter/oper | 9,100 | 7,900 | -1,175 | -13.22 | 80 | -110 | 200 |
| Machine forming operator & tender | 21,250 | 16,150 | -5,075 | -23.95 | -110 | -500 | 390 |
| Mach. tool cut. op. & tend. | 23,850 | 18,150 | -5,675 | -23.95 | 80 | -560 | 650 |
| Milling mach. setter/operator | 3,050 | 2,650 | -375 | -12.88 | 70 | -30 | 110 |
| Press mach. setter/operator | 4,700 | 3,850 | -825 | -17.99 | 10 | -70 | 90 |
| Punch. mach. setter/operator | 4,750 | 4,000 | -750 | -16.10 | 20 | -70 | 100 |
| Rolling mach. setter/operator | 450 | 300 | -100 | -28.49 | 0 | 0 | 10 |
| Sawing mach. tool setter/operator | 1,250 | 1,050 | -150 | -14.57 | 20 | -10 | 30 |
| Shear mach. setter/operators | 1,050 | 900 | -100 | -12.06 | 10 | 0 | 20 |
| **Met. fab. mach. setter/operator** | **15,000** | **15,050** | **25** | **0.19** | **330** | **0** | **330** |
| Metal fabricators, struc. metal | 850 | 1,000 | 150 | 17.87 | 40 | 10 | 20 |
| Solder. & braz. mach. operators | 150 | 150 | 0 | -6.33 | 0 | 0 | 0 |
| Solder. & braz. mach. setter/op | 600 | 650 | 50 | 7.36 | 20 | 0 | 20 |
| Welding machine oper. & tend | 8,450 | 8,000 | -450 | -5.56 | 120 | -40 | 170 |
| Welding machine setter/operator | 4,950 | 5,250 | 325 | 6.37 | 140 | 30 | 110 |
| **Metal & plastic mach. setter/oper** | **22,150** | **24,600** | **2,425** | **10.97** | **780** | **240** | **530** |
| Elec. plat. mach. oper. & tender | 1,300 | 1,250 | 0 | -0.90 | 20 | 0 | 20 |
| Elec. plat. mach. setter/operator | 1,400 | 1,400 | 25 | 2.21 | 30 | 0 | 30 |
| Foundry mold assem. & shakeout op | 500 | 300 | -175 | -39.01 | 0 | -10 | 10 |
| Furnace operators & tenders | 900 | 800 | -100 | -12.42 | 30 | 0 | 40 |
| Heaters, metal & plastic | 150 | 150 | 0 | -22.15 | 0 | 0 | 10 |
| Heat. equip. setter/operator | 950 | 900 | 0 | -2.11 | 40 | 0 | 40 |
| Heat treating mach. op. & tender | 1,900 | 1,750 | -100 | -6.66 | 70 | 0 | 80 |
| Metal molding mach. op. & tender | 1,200 | 1,000 | -200 | -18.65 | 0 | -10 | 20 |
| Met. mold. mach. setter/operator | 1,450 | 1,350 | -50 | -5.58 | 20 | 0 | 30 |
| Nonel. plat. mach. op. & tender | 50 | 50 | 0 | 10.70 | 0 | 0 | 0 |
| Nonel. plat. ma. setter/operator | 450 | 450 | 25 | 6.99 | 10 | 0 | 10 |
| Plastic mold. mach. op. & tender | 9,600 | 12,200 | 2,625 | 27.43 | 470 | 260 | 210 |
| Plas. mold. mach. setter/operator | 2,350 | 2,900 | 525 | 22.67 | 100 | 50 | 50 |
| **Printing, binding, & rel. work** | **11,300** | **12,900** | **1,575** | **14.02** | **490** | **160** | **330** |
| Bindery machine operators | 1,500 | 1,900 | 400 | 27.39 | 90 | 40 | 50 |
| Bindery mach. setters/operators | 850 | 1,000 | 150 | 15.96 | 40 | 10 | 30 |
| Printing press operators | 5,700 | 6,350 | 650 | 11.47 | 230 | 70 | 170 |
| Letterpress setter/operator | 600 | 550 | -25 | -6.63 | 10 | 0 | 20 |
| Offset lithog. press set/oper | 2,950 | 3,450 | 500 | 16.76 | 140 | 50 | 90 |
| Printing press machine operator | 1,900 | 2,100 | 175 | 9.30 | 70 | 20 | 60 |

State of Michigan
OCCUPATIONAL EMPLOYMENT PROJECTIONS
1985 - 1995
*(For Occupations of 50 Employment or Greater)*

| OCCUPATION NAME | 1985 EMPLOYMENT | 1995 EMPLOYMENT | EMPLOYMENT CHANGE NUMBER | EMPLOYMENT CHANGE RATE | ANNUAL AVERAGE OPENINGS TOTAL | GROWTH | REPLACEMENT |
|---|---|---|---|---|---|---|---|
| AD print. press setters/oper | 250 | 250 | 25 | 8.75 | 10 | 0 | 10 |
| Photoeng. & lithog. mach. oper. | 350 | 400 | 75 | 18.42 | 20 | 10 | 10 |
| Photoen. & litho. photographers | 550 | 650 | 100 | 19.76 | 30 | 10 | 20 |
| Screen pr. mach. setter/operator | 200 | 250 | 25 | 15.33 | 10 | 0 | 10 |
| Typeset. & comp. mach. operator | 900 | 950 | 75 | 8.49 | 30 | 10 | 20 |
| All Other printing, binding, & rel | 1,250 | 1,350 | 100 | 8.15 | 50 | 10 | 40 |
| **Text. & rel. setters & operators** | **17,250** | **16,750** | **-475** | **-2.83** | **730** | **-40** | **780** |
| Laund. & drycl. mach. operators | 5,350 | 5,650 | 300 | 5.48 | 330 | 30 | 300 |
| Press. mach. op. & tend., textile | 2,050 | 2,000 | 0 | -1.72 | 110 | 0 | 120 |
| Sewing mach. oper., garment | 2,350 | 2,250 | -75 | -4.47 | 80 | 0 | 90 |
| Sewing mach. oper., non-garm | 6,750 | 6,200 | -550 | -8.35 | 200 | -50 | 260 |
| Shoe sewing mach. oper. & tender | 300 | 250 | -50 | -25.44 | 0 | 0 | 0 |
| Tex. bleach. & dye. mach. op | 50 | 50 | 0 | -9.15 | 0 | 0 | 0 |
| Textile draw-out mach. oper. | 50 | 50 | 0 | -4.00 | 0 | 0 | 0 |
| Wind ,twist, knit mach. oper. | 200 | 200 | 0 | -2.78 | 10 | 0 | 10 |
| Textile mach. setters/operators | 100 | 150 | 0 | 9.57 | 10 | 0 | 10 |
| **Woodworking machine setters/ops** | **3,650** | **3,800** | **150** | **3.83** | **130** | **10** | **120** |
| Head sawyers | 200 | 200 | 0 | 0.48 | 10 | 0 | 10 |
| Sawing machine oper. & tender | 1,050 | 1,100 | 0 | 1.02 | 40 | 0 | 40 |
| Sawing machine setters/operators | 450 | 500 | 25 | 6.88 | 20 | 0 | 20 |
| Woodworking mach. oper. & tender | 1,200 | 1,250 | 50 | 5.09 | 30 | 10 | 30 |
| Woodwork. mach. setters/operators | 700 | 750 | 25 | 4.94 | 30 | 0 | 30 |
| **Oth. mach. setters & operators** | **59,200** | **60,400** | **1,200** | **2.04** | **1,820** | **120** | **1,490** |
| Boiler oper. & tend., low press | 800 | 800 | 0 | -2.41 | 30 | 0 | 30 |
| Cement. & gluing mach. oper. | 950 | 950 | 0 | -0.41 | 20 | 0 | 20 |
| Chem. equip. controllers & oper. | 1,600 | 1,550 | -25 | -3.05 | 40 | 0 | 40 |
| Chemical equipment tenders | 400 | 400 | 0 | 1.17 | 10 | 0 | 10 |
| Cook. mach. oper. & tend., food | 500 | 500 | 0 | 2.34 | 10 | 0 | 10 |
| Crush. & mix. mach. op. & tender | 4,100 | 4,100 | 25 | 0.86 | 110 | 0 | 100 |
| Cut. & slic. mach. op. & tender | 1,500 | 1,500 | 50 | 2.94 | 50 | 0 | 50 |
| Dairy proc. eq. oper. & tender | 450 | 350 | -75 | -20.67 | 0 | 0 | 10 |
| Ext. & form. mach. op. & tender | 1,700 | 1,850 | 175 | 9.76 | 50 | 20 | 30 |
| Furnace, kiln, or kettle operator | 500 | 350 | -125 | -30.98 | 0 | -10 | 10 |
| Motion picture projectionist | 300 | 250 | 0 | -11.43 | 20 | 0 | 20 |
| Packaging & fill. mach. oper | 8,250 | 8,550 | 300 | 3.57 | 200 | 30 | 170 |
| Painting mach. oper. & tender | 2,100 | 2,300 | 200 | 9.45 | 70 | 20 | 50 |
| Painters, transportation equipt. | 1,850 | 1,600 | -225 | -13.73 | 10 | -20 | 40 |
| Paper goods mach. setter/operator | 1,350 | 1,350 | 0 | -0.60 | 40 | 0 | 40 |
| Photog. proc. mach. oper. & tend. | 1,450 | 1,800 | 325 | 23.24 | 60 | 30 | 20 |
| Roast. mach. oper. & tender | 250 | 200 | -25 | -15.66 | 0 | 0 | 0 |
| Separ. & still mach. op. & tend. | 450 | 450 | 0 | -3.41 | 10 | 0 | 10 |
| Tire building machine operators | 100 | 50 | -25 | -40.79 | 0 | 0 | 0 |

State of Michigan
OCCUPATIONAL EMPLOYMENT PROJECTIONS
1985 - 1995
*(For Occupations of 50 Employment or Greater)*

| OCCUPATION NAME | 1985 EMPLOYMENT | 1995 EMPLOYMENT | EMPLOYMENT CHANGE NUMBER | EMPLOYMENT CHANGE RATE | ANNUAL AVERAGE OPENINGS TOTAL | GROWTH | REPLACEMENT |
|---|---|---|---|---|---|---|---|
| All Other mach. operators & tender | 21,350 | 21,500 | 175 | 0.80 | 580 | 20 | 560 |
| All Other mach. setters/operator | 9,350 | 10,000 | 650 | 7.06 | 320 | 70 | 260 |
| **Hand working occup., incl. assemblers** | **145,050** | **138,900** | **-6,100** | **-4.22** | **2,170** | **-600** | **2,780** |
| **Precision assemblers** | **10,500** | **10,600** | **75** | **0.73** | **230** | **10** | **220** |
| Elec. & electron. eqpt. assembler | 2,950 | 3,050 | 100 | 3.81 | 70 | 10 | 60 |
| Electromechan. eq. assembler | 1,400 | 1,300 | -100 | -9.29 | 10 | 0 | 20 |
| Fitters, structural metal, precis | 450 | 550 | 100 | 20.04 | 20 | 10 | 10 |
| Mach. build. & precis, mach. ass. | 3,300 | 3,350 | 75 | 2.16 | 70 | 10 | 60 |
| Watch & clock assemblers | 50 | 100 | 25 | 23.04 | 0 | 0 | 0 |
| AO precision assemblers, metal | 2,300 | 2,200 | -50 | -3.70 | 50 | 0 | 60 |
| **Oth. hand wkrs., incl. assembler** | **134,500** | **128,350** | **-6,175** | **-4.61** | **1,940** | **-610** | **2,560** |
| Cannery workers | 2,150 | 2,050 | -50 | -3.76 | 30 | 0 | 40 |
| Coil winders, tapers, & finish. | 750 | 850 | 125 | 16.16 | 30 | 10 | 20 |
| Cutters & trimmers, hand | 850 | 900 | 25 | 4.22 | 10 | 0 | 10 |
| Electrical & electronic assembl | 6,400 | 6,700 | 300 | 4.85 | 150 | 30 | 120 |
| Glaziers, manufacturing | 100 | 100 | 25 | 15.24 | 0 | 0 | 0 |
| Machine assemblers | 2,900 | 2,900 | 25 | 0.57 | 50 | 0 | 50 |
| Meat, poultry, & fish cutter | 700 | 850 | 125 | 18.37 | 20 | 10 | 10 |
| Metal pourers & casters, basic | 900 | 800 | -100 | -13.42 | 10 | 0 | 20 |
| Molders & casters, hand | 950 | 950 | 0 | 0.54 | 20 | 0 | 20 |
| Paint., coat., & decor. wkrs | 1,450 | 1,800 | 350 | 24.50 | 120 | 40 | 80 |
| Portable machine cutters | 200 | 150 | -25 | -23.19 | 0 | 0 | 0 |
| Pressers, hand | 150 | 150 | 0 | -8.46 | 0 | 0 | 0 |
| Sewers, hand | 100 | 100 | 0 | -5.63 | 20 | 0 | 20 |
| Welders & cutters | 13,850 | 12,350 | -1,450 | -10.68 | 130 | -140 | 270 |
| All Other assemblers & fabricators | 86,300 | 80,850 | -5,400 | -6.30 | 990 | -530 | 1,530 |
| All Other hand workers | 16,800 | 16,750 | 0 | -0.02 | 360 | 0 | 360 |
| **Plant & system occupations** | **11,700** | **11,800** | **100** | **0.90** | **330** | **10** | **310** |
| **Aux. equip. operators, power** | **300** | **250** | **-25** | **-15.13** | **0** | **0** | **10** |
| **Chemical plant & system operators** | **950** | **950** | **25** | **1.61** | **30** | **0** | **30** |
| **Gaugers** | **50** | **50** | **0** | **-9.77** | **0** | **0** | **0** |
| **Petrol. ref. & contr. panel oper.** | **150** | **150** | **0** | **2.50** | **0** | **0** | **0** |
| **Power distributors & dispatchers** | **600** | **550** | **0** | **-2.23** | **10** | **0** | **10** |
| **Stationary engineers** | **1,100** | **1,050** | **0** | **-2.13** | **40** | **0** | **40** |
| **Water & liq. waste treat. plant op** | **1,650** | **1,850** | **175** | **10.69** | **60** | **20** | **40** |
| **All Other plant & system operators** | **7,000** | **6,950** | **0** | **-0.15** | **170** | **0** | **170** |
| **Transp. & mat. moving & vehic. oper.** | **169,500** | **181,150** | **11,675** | **6.89** | **5,380** | **1,170** | **4,220** |
| **Aircraft pilots & fl. engineer** | **1,750** | **2,800** | **1,050** | **60.01** | **150** | **110** | **50** |

State of Michigan
OCCUPATIONAL EMPLOYMENT PROJECTIONS
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| OCCUPATION NAME | 1985 EMPLOYMENT | 1995 EMPLOYMENT | EMPLOYMENT CHANGE NUMBER | EMPLOYMENT CHANGE RATE | ANNUAL AVERAGE OPENINGS TOTAL | GROWTH | REPLACEMENT |
|---|---|---|---|---|---|---|---|
| **Motor vehicle operators** | **99,050** | **112,300** | **13,275** | **13.39** | **4,090** | **1,330** | **2,770** |
| Bus drivers | 15,000 | 16,250 | 1,275 | 8.45 | 600 | 130 | 470 |
| Bus drivers | 2,400 | 2,400 | 0 | 0.29 | 70 | 0 | 70 |
| Bus drivers, school | 12,600 | 13,850 | 1,250 | 10.00 | 520 | 130 | 400 |
| Taxi drivers & chauffeurs | 900 | 1,000 | 100 | 12.30 | 70 | 10 | 60 |
| Truck drivers | 83,150 | 95,050 | 11,900 | 14.30 | 3,430 | 1,190 | 2,240 |
| **Rail transportation workers** | **3,700** | **2,800** | **-850** | **-23.67** | **0** | **-80** | **80** |
| Locomotive engineers | 600 | 450 | -125 | -24.16 | 0 | -10 | 20 |
| Locomotive firers | 250 | 200 | -25 | -24.21 | 0 | 0 | 10 |
| RR brake, signal, & switch oper. | 1,400 | 1,050 | -300 | -23.55 | 0 | -20 | 20 |
| RR conductors & yardmasters | 1,150 | 900 | -250 | -24.18 | 0 | -20 | 30 |
| Rail yd. eng., dinkey oper. | 300 | 200 | -25 | -20.54 | 0 | 0 | 10 |
| **Water transportation & rel. wk** | **350** | **350** | **0** | **0.11** | **10** | **0** | **10** |
| Captains, water vessel | 150 | 150 | 25 | 10.25 | 10 | 0 | 0 |
| Mates & able seamen | 100 | 100 | 0 | 6.55 | 0 | 0 | 0 |
| Ordinary seamen & marine oil | 50 | 50 | 0 | -7.03 | 0 | 0 | 0 |
| Pilots, ship | 50 | 50 | 0 | -31.66 | 0 | 0 | 0 |
| Ship engineers | 50 | 50 | 0 | -11.56 | 0 | 0 | 0 |
| **All Other transportation workers** | **10,500** | **11,000** | **500** | **4.84** | **240** | **50** | **190** |
| Parking lot attendants | 750 | 850 | 100 | 14.72 | 60 | 10 | 40 |
| Service station attendants | 9,750 | 10,150 | 400 | 4.10 | 190 | 40 | 150 |
| **Material moving equipment oper** | **36,850** | **32,800** | **-4,025** | **-10.98** | **310** | **-390** | **710** |
| Conveyor operators & tenders | 2,050 | 2,050 | 0 | -1.11 | 30 | 0 | 40 |
| Hoist, winch, & crane operat | 3,400 | 3,300 | -100 | -3.83 | 100 | 0 | 120 |
| Industrial truck & tractor oper. | 25,150 | 20,300 | -4,825 | -19.32 | -70 | -480 | 400 |
| Load. mach. op., undergr. mi | 50 | 50 | 0 | 5.96 | 0 | 0 | 0 |
| Oil pumpers, ex. well head | 50 | 50 | 0 | -12.25 | 0 | 0 | 0 |
| Operating engineers | 5,800 | 6,800 | 975 | 16.93 | 250 | 100 | 150 |
| Tank car & truck loaders | 50 | 100 | 0 | 3.05 | 0 | 0 | 0 |
| Well head pumpers | 250 | 250 | 0 | -2.73 | 0 | 0 | 0 |
| **AO transp. & mat. mov. eq. ope** | **17,300** | **19,050** | **1,750** | **10.19** | **590** | **180** | **410** |
| **Helpers, labor., & mat. mov., ha** | **145,350** | **157,450** | **12,100** | **8.32** | **4,270** | **1,210** | **3,060** |
| **Construction trades helpers** | **5,300** | **5,650** | **400** | **7.51** | **100** | **40** | **60** |
| **Machine feeders & offbearers** | **11,650** | **11,300** | **-300** | **-2.83** | **260** | **-20** | **290** |

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|---|---|---|---|---|---|---|---|
| **Freight, stock, & mat. movers** | **26,000** | **28,550** | **2,575** | **9.87** | **620** | **280** | **360** |
| Refuse collectors | 2,600 | 3,150 | 525 | 20.42 | 150 | 50 | 90 |
| All Other freight & stock movers | 23,400 | 25,400 | 2,025 | 8.69 | 470 | 200 | 270 |
| **All Other helpers, labor. & movers** | **102,450** | **111,900** | **9,450** | **9.23** | **3,290** | **950** | **2,340** |
| Hand packers & packagers | 14,550 | 18,750 | 4,200 | 28.95 | 860 | 420 | 430 |
| Veh. washers & equip. cleaners | 5,700 | 6,750 | 1,050 | 18.40 | 210 | 110 | 110 |
| All Other helpers, labor., movers | 82,200 | 86,400 | 4,200 | 5.11 | 2,220 | 420 | 1,800 |

Michigan Employment
Security Commission